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ous plants are figured with that fidelity and botanical accuracy which is demanded on so important a subject. Although aware that many of the plants are accurately and beautifully figured in more than one of the works on medical botany recently published, they are by far too voluminous and expensive for students and others who, in the pursuit of amusement or science, might wish to discriminate the noxious from the innoxious plants; and the smaller tracts on the subject are very deficient in graphical accuracy.

In a work professedly intended to illustrate, by graphical Icons, the principal indigenous noxious vegetables scattered over our fields and meadows, and some of the exotic poisons cultivated in our gardens as ornamental shrubs, it would be foreign to the object of the work to enter into the chemical, physiological, or pathological investigation of vegetable poisons. In the present work, the Editor's aim has been to give accurate delineations of the various plants, by which they may be readily recognised, with their botanical characters, the symptoms produced by their internal or external applications, and the remedial agents to be resorted to, when, by accident or design, a sufficient quantity has been administered to produce alarming and dangerous symptoms.

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INTRODUCTION.

THE science which relates to the investigation of poisons has received the name of Toxicology¹. The name poison is given to any substance which, taken inwardly or applied externally in any kind of manner, in very small quantities, injures the health or destroys life. The word poison, in medical language, implies not only such substances as commonly destroy life in a few hours, or at farthest, in a day or two, but also many others whose effects, although violent, are less rapidly fatal; such as the miasms of marshy lands, contagious fevers, the venom of rabid dogs, &c. &c.

A substance may be poisonous to one or even to numerous classes of animals, and yet prove harmless to others, and even acceptable food to some. It is said that Storks and Quails feed on Hemlock and Monkshood², and we are told by Plenck, that aloes (one of our most useful medicines) acts as poison to the dog and wolf; pepper to swine; parsley-seed to birds; nux vomica to cattle; and bitter almonds to fowls, cats, and foxes; none of which, however, are very deadly poisons; some of them are even harmless to man³. The cenanthe crocata or hemlock drop-wort, which is poisonous to man, we are told by Withering, is wholesome food for sheep. The cicuta aquatica, water hemlock, which is deadly to man and to

The name of toxicology is derived from the Greek word τὸξικὸν (poison), and λόγος (a discourse).

² Quest. Med. Leg. lib. ii, Romæ, 1621.

³ Toxicologie, v. 12, nota. Wien. 1785.

the ox, is greedily devoured by the goat, and safely eaten

by the horse and sheep.

Poison is also relative to the individual peculiarity or constitution, technically called *idiosyncrasy*; owing to which, medicinal or alimentary substances, suitable or agreeable to the generality of mankind, have, to some persons, proved unfit, or even dangerous in very small quantities, and, in some cases, poisonous. Of alimentary substances, we may mention the common muscle, which has proved poisonous to many in this country, and, it is said, that one of our early Monarchs lost his life by the incautious use of lampreys. Pliny mentions, nineteenth book, chap. vi, the case of a Roman Knight, named Mela, who was poisoned by a small quantity of the juice of leeks. Numerous other instances are recorded of similar effects from the same cause.

The activity of poisonous substances depends much on habit; the most energetic poison, taken in small doses gradually augmented, becoming almost inert. In illustration of this law, many instances are on record. Galen speaks, in his work on the *Powers of Simple Medicines* (b. iii, c. 18), of an old woman at Athens, who had so accustomed herself to hemlock, that it became, as it were, food to her. The author of the "Confessions of an English Opium Enter" could exceed five drachms of opium daily, without inconvenience, equivalent to upwards of 4100 drops of laudanum¹.

¹ The author knew a person who, for many years, took daily six ounces, by measure, of laudanum.

The activity of poisonous substances depends on several circumstances: on the state of health of individuals—their climate—race—and on the mode of application of the poison to the living body.

The state of health and disease have great influence over the action of poisons. Opium may be administered to the extent of several scruples to persons labouring under some affections, whereas a few grains would destroy life in a man in a good state of health. The inhabitants of southern nations seem more susceptible of narcotic and other vegetable poisons than those of northern latitudes¹.

Vegetable poisons have been divided by toxicological writers into three classes: acrid or irritating, narcotic, and narcotic acrid; the latter partaking of the properties of the first and second.

ACRID OR IRRITATING POISONS.

The symptoms produced by this class of vegetable poisons, when taken into the stomach, are usually very violent: the first effects are a pungent, acrid taste, with more or less bitterness; excessive heat and dryness of the mouth and throat, accompanied with a sense of tightness in it; to these succeed violent vomitings and purging, with great pain in the stomach and bowels, the efforts to vomit continuing after the contents of the sto-

¹ Haller mentions, in his *Elementi Physiologia*, that the Russians used *nu.v romica* as an emetic; and we are told by Linneus, in his *Lachesis Lapponica*, that the yellow Λconite or wolf's-bane is eaten as a pot herb in some part of Norway.

mach have been evacuated; the pulse becomes frequent and strong, the breathing quick and laborious; appearances of intoxication sometimes occur; the pupil of the eye is often dilated. If the above symptoms be not removed in due time, by proper remedies, insensibility, resembling death, soon follows; the pulse loses its force, becomes slow, and death follows.

TREATMENT. If vomiting has been occasioned by any of these poisons, and the efforts to vomit continue after the poison has been evacuated, large draughts of warm water, or thin gruel, may be taken, by which the efforts will be rendered easier; but, if symptoms of intoxication or insensibility have come on without vomiting, it should be immediately excited by a proper dose of some active emetic substance; viz. sulphate of zinc, emetic tartar, or ipecacuanha; after the stomach has been evacuated, an active purgative should be administered. When as much as possible of the poison has been removed by these means, a strong infusion of coffee may be drank warm, and, at intervals, vinegar diluted with water, in the proportion of one part of the former to three or four of the latter; camphor mixture, with ether, may also be administered frequently, and often with much advantage. If the symptoms of insensibility be considerable, blisters should be applied to the nape of the neck and legs; warm frictions should also be employed. If symptoms of inflammation supervene, recourse must be had to bleeding, and the usual means resorted to in inflammatory diseases.



calyces, and grow in a long racemus or spike; each flower consists of five petals, which include two nectaries, the uppermost petal is arched over the lateral ones, so as to appear helmet-shaped, or hooded; they are all of a purplish or deep violet colour: the pistils (according to Jacquin) are three, four, and sometimes five. The aconitum is a native of the mountainous and woody parts of Germany, France, and Switzerland; but, since the time of Gerard, it has been cultivated for ornament in most of the flower-gardens in this country. Every part of the fresh plant is strongly poisonous, but the root is unquestionably the most powerful; and, when first chewed, imparts a slight sensation of acrimony, but, afterwards, an insensibility, or stupor at the apex of the tongue; and a pungent heat of the lips, gums, palate, and fauces, is perceived, followed by a general tremor and sensation of chilliness. Though the plant loses much of its power by drying, yet Stoerck observes, that when powdered and put upon the tongue, it excites a durable sense of heat, and sharp wandering pains, but without redness or inflammation. The juice, applied to a wound, seemed to affect the whole nervous system; even by keeping it long in the hand, or on the bosom, we are told unpleasant symptoms have been produced.

¹ The deleterious qualities are diminished, in a considerable degree, when it is dried or long kept

The deleterious effects of this plant, like those of most vegetable poisons, are produced by its immediate action upon the nervous system; for, in the different animals which have been destroyed by it, dissections have not discovered any particular marks of organic disease.

The leaves of this plant are used medicinally, as a narcotic, diaphoretic, and diuretic. Much caution, however, is required in the exhibition of it; and the dose must be proportioned according to the length of time the plant has been gathered.

It has been chiefly administered in chronic rheumatism, paralysis, exostosis, and gout.

HELLEBORUS NIGER. BLACK HELLEBORE.

Class POLYANDRIA.

Ord. POLYGYNIA.

Gen. Ch. Calyx, none. Petals, five or more. Nectaries, bilabiate, tubular. Capsules, many-seeded.

Sp. Ch. Flower-stalk, one or two flowered, round, smooth.

¹ M. Brandes believes the narcotic principle to be an alkali, which he has named aconita.

The root is perennial, rough, knotted, and externally of a black colour, internally whitish, sending off many strong, round, long, fibres; the flower-stalks are erect, round, tapering, and, towards the bottom, reddish; the bracteal leaves supply the place of the calyx, and are oval, concave, and generally indented at the top; the petals are five, large, roundish, spreading, at first of a white colour, succeeded by reddish tints, but finally putting on a greenish appearance; the nectaries are about eight in number, tubulated, somewhat compressed, bilabiated, and of a greenish yellow colour; the filaments are white; the anthers, yellow; the germens vary, commonly from four to eight; and the capsules or pods contain many oval, shining, blackish seeds; the leaves are compound, divided in a peculiar manner, or pedated, and stand upon long radical footstalks; the simple leaf is elliptical, smooth, thick, and serrated towards the top. This plant is a native of Austria and Italy, and was unknown to the gardens in this country, till cultivated by Mr. John Gerard, in 1596. If the weather be sufficiently mild, it flowers in January.

The taste of the fresh root is bitterish, and somewhat acrid. It also emits a nauseous acrid smell; but, being long kept, both its sensible qualities and medicinal activity suffer very considerable diminution.

The root of this plant is sometimes used as a cathartic; but it does not appear to possess advantages over other resinous purgatives which act with less violence. The dried root, in doses of from ten to twenty grains, is powerfully cathartic; in smaller doses, it is said to act as an alterative. It was formerly much celebrated in mania, dropsy, melancholia, and worms, but, in modern practice, it is seldom used.

Black hellebore, taken in large doses, occasions violent vomiting, inflammation of the stomach, tremblings, vertigo, cramps, convulsions, and death. These effects are best obviated by evacuating the stomach, by drinking copiously of mucilaginous liquids, and employing powerful antiphlogistic measures.

HELLEBORUS FŒTIDUS.

FETID HELLEBORE OR BEAR'S FOOT.

Class POLYANDRIA.

Ord. POLYGYNIA.

Gen. Ch. Calyx, none. Petals, five or more. Nectaries, bilabiate, tubular. Capsule, many-seeded.

Sp. Ch. Stem, many-flowered, leafy. Leaves, pedate. Petals, converging.

The root is small, but beset with a prodigious number of slender dark-coloured fibres; the stem rises to the height of a foot and a half or more; towards the bottom it is round, strong, firm, naked, and marked with alternate cicatrices, the vestiges of the former leaves; at the top, it divides and subdivides into branches, producing many flowers, and is garnished with scaly leaves or bracteæ; the leaves are numerous, and stand upon long footstalks, surrounding the middle of the stem; they are divided, like the helleborus niger, into simple leaves, which are commonly eight or nine, long, narrow, lanceolated, serrated, and of a dark green colour; the scaly leaves, placed at the ramifications of the flower stem, are smooth, trifid, alternate, and often purplish; but those near the flowers are oval and pointed; the flowers are numerous, terminal, pendent, of a roundish shape, and stand upon peduncles, forming a sort of umbel; the petals are five, oval, concave, persistent, of a pale green colour, and their margins are usually tinged with purple; the stamens are the length of the petals; the anthers are white; the germens three, hairy, and shaped similarly to those of the helleborus niger. This plant grows wild in many parts of England, and flowers about February.

This plant, as the name implies, has an extremely fetid smell; the taste of the leaves is bitter and extremely acrid, so much so, that when chewed, it excoriates the mouth; the stipules are more acrid than the leaves.



Bear's Foot, or Fatial Hellebore.

Meadow Suffren.

G. Spratt. del.



The leaves of fetid hellebore are powerfully cathartic, operating also as an emetic; and, in large doses, prove highly deleterious.

The dried leaves, in doses of fifteen grains, have been given to children with success', to expel the lumbricus teres or round worm; but they are now seldom used, in consequence of their dangerous effects, when accidentally administered in over doses.

COLCHICUM AUTUMNALE.

COMMON MEADOW SAFFRON.

Class HEXANDRIA.

Ord. TRIGYNIA.

Gen. Ch. Calyx, none. Corolla of one petal, tubular. Capsules, three, inflated. Seeds, numerous.

Sp. Ch. Leaves, flat, lanceolate, erect. Segments of the corolla, oblong.

⁴ Vide Woodville's Med. Bot. vol. 3, page 479.

The root is perennial, consisting of a solid double succulent bulb, covered with a brown membranous coat: the flower is large, of a purplish colour, and rises immediately from the root, upon a long naked tube, like that of the saffron; the leaves appear in the spring, and are numerous, radical, spear-shaped, one or two much narrower than the others; there is no calyx; the corolla is monopetalous, and divided into six lance-shaped, large, erect, segments, of a pale purple colour; the filaments are six, tapering, white, much shorter than the corolla, and furnished with erect, pointed, yellow, anthers; the germen is lodged at the root, from which issue three slender styles, reflexed at the top, and terminated by simple pointed stigmas; the capsule is three-lobed, divided into three cells, containing numerous small globular seeds, which do not ripen till the succeeding spring, when the capsule rises above the ground upon a strong peduncle. It is a native of England, affecting meadow grounds of a rich soil, and flowers in September.

The bulbs, when mature, and taken out of the ground, at a proper season of the year (from June to August), if cut transversely, yield an acrid milky-looking juice, of a hot, bitter taste; and, when swallowed in a small quantity, occasion a warm sensation in the stomach. The acrimony of the roots depends very much upon the season, and the soil on which the plant grows; in some situations, it contains very little acrimony; in others, so

much, that, when taken in very small quantities, it has proved fatal both to men and animals'.

As a remedial agent, the roots of colchicum possess diuretic, narcotic, and purgative properties²; hence, it has been recommended in dropsy, hydrothorax, and in humoral asthma. It does not, however, appear to be superior to squill in those complaints. Latterly, it has been much used in gout and rheumatism, with decided success, allaying the pain in those complaints. It operates on the nerves, diminishing the action of the arterial system; and on the bowels, producing copious bilious evacuations.

The acrimony resides in a peculiar alkali, discovered by MM. Pelletier and Caventon; this principle is obtained in the form of a white powder, named by those gentlemen, Veratrine³.

As veratrine produces the same effects as the plants from which it is extracted, it may be advantageously substituted for them; as it permits the quantity of the active substance used, to be correctly estimated, which the others do not.

¹ Murray, App. Med vol. 5.

² The petals of the flowers, and the seed, possess the same properties as the bulb, but in a less degree.

³ Vide Journ, de Pharm. August 1820; also Trans. Majendie's Formulary, by R. Dunglison, M.D.

VERATRUM ALBUM. WHITE HELLEBORE.

Class Polygamia.

Ord. MONŒCIA.

Gen. Ch. Hermaphrodite. Calyx, none. Corolla, sixpetalled. Stamens, six. Pistils, three. Capsules, three, many-seeded. Male the same. Rudiment of a pistil. Sp. Ch. Spikes, branched. Corolla, erect.

The root is perennial, about an inch thick, externally brown, internally white, and beset with many strong fibres: the stalk is thick, strong, round, upright, hairy, and usually rises four feet in height; the leaves are numerous, very large, oval, entire, ribbed, plaited, without footstalks, of a yellowish green colour, and surround the stem at its base; the flowers are both hermaphrodite and male, of a greenish colour, and appear from June to August, in very long, branched, terminal spikes; the hermaphrodite flowers are without calyces; the corolla consists of six petals, which are oblong or lance-shaped, veined, persistent, of a pale green colour; the filaments are six, closely surrounding the germens, shorter than the corolla, and terminated by quadrangular anthers; the



Mire Hellebre.



germens are three in each flower, erect, oblong, ending in short hairy styles, which are crowned with flat spreading stigmas; the capsules are three, oblong, compressed, erect, two-celled, opening inwardly, and containing many oblong compressed membranous seeds. The male flowers differ from these only in wanting the germens.

This plant is a native of Italy, Switzerland, Austria, and Russia: its first cultivation in this country is ascribed to Gerard, and, of course, was previous to the year 1596.

It appears, from various instances, that not only the roots of white hellebore, but that every part of the plant, is extremely acrid and poisonous, as its leaves, and even seeds, proved deleterious to different animals. The dried root has no peculiar smell, but a durable, nauseous, acrid, bitterish taste, burning the mouth and fauces; when powdered, and applied to issues or ulcers, it produces griping and purging; if snuffed up the nose, it proves a violent sternutatory. The root, taken in large doses, discovers such acrimony, and operates upwards and downwards with such violence, that blood is usually discharged; it likewise acts very powerfully upon the nervous system, producing great anxiety, tremors, vertigo, syncope, loss of voice, interrupted respiration, sinking of the pulse, convulsions, spasms, cold sweats, &c.

White hellebore, as a remedial agent, is chiefly employed as an external application in the form of wash, or mixed with some unctuous substance as an ointment, in

herpetic eruptions and scabies. In every form, however, it must be used with caution. The powdered root (mixed with a due proportion of starch or liquorice powder) is also used as an errhine in lethargic cases and gutta serena: when administered in an over dose, or taken as a poison, the best antidote is a strong infusion of nut-galls.

DAPHNE MEZEREUM.

MEZEREON.

Class OCTANDRIA.

Ord. MONOGYNIA.

Gen. Ch. Calyx, none. Corolla, four-cleft, corollaceous, withering, enclosing the stamens. Drupe, one-seeded.

Sp. Ch. Flowers, sessile, about three together. Leaves, lanceolate, deciduous.

The mezereon is a hardy shrub, which usually grows to the height of five or six feet, and sends off several branches; the exterior bark is smooth, and of a grey colour; the root is of a fibrous texture, of a pale colour, and covered with a smooth olive-coloured bark; the

leaves are few, tender, lance-shaped, sessile, deciduous, and appear at the terminations of the branches after the flowers are expanded; the flowers surround the branches in thick clusters, they are sessile, monopetalous, tubular, having the limb divided into four oval spreading segments, commonly of a pinkish colour'; the stamens are eight, alternately shorter, and concealed within the tube of the corolla; the style is very short, the stigma flat, and the germen, which is oval, becomes a reddish berry, containing a round seed. This shrub is a native of England, though not very common. It is said to grow plentifully in some woods near Andover, in Hampshire, and also about Lanfield, in Suffolk; but it is generally cultivated in gardens, on account of the beauty and earliness of its flowers, which appear in February and March.

This plant is extremely acrid, especially when fresh, and if retained in the mouth, excites great and long-continued heat and inflammation, particularly of the throat and fauces; the berries also have the same effects, and, when swallowed, prove a powerful corrosive poison, not only to man, but to dogs, wolves, foxes, &c.

The bark and berries of mezereon, in different forms, have been long externally used to obstinate ulcers and

¹ There is a variety of the mezereon with white flowers and yellow fruit, but the qualities and the medicinal effects of both are the same

² The bark of the root is the most acrimonious part of the plant.

ill-conditioned sores. In France, the former is strongly recommended as an application to the skin, which, under certain management, produces a continued serous discharge, without blistering; and is thus rendered useful in many chronic diseases of a local nature, answering the purpose of what has been called a perpetual blister, while it occasions less pain and inconvenience.

A decoction of the bark has been administered internally in chronic rheumatism, scrofulous swellings, and some cutaneous diseases. A case of difficulty of swallowing, occasioned by paralysis, of three years' standing, is recorded by Dr. Withering, where the patient recovered the power of swallowing in about a month, by chewing thin slices of the root several times a day.

ARUM MACULATUM.

COMMON ARUM OR WAKE ROBIN.

Class Gynandria. Ord. Polyandria.

Gen. Ch. Spathe, one-leafed, cowled. Spadix, naked above, female below, stamineous in the middle.

Sp. Ch. Stem, none. Leaves, halbert-shaped, entire. Common stalk of the flowers, club-shaped, obtuse.





The root is perennial, tuberous, about the size of the thumb, sending off many long, simple fibres: the leaves are commonly three or four, growing from each root; these are arrow-shaped, of a deep green or purplish colour, beset with many veins and dark spots, and stand upon long, grooved, and somewhat triangularly-shaped footstalks; the flower stalk is very short and channelled; the calyx is a sheath of one leaf, large, oval, nerved, and enclosing the spadix, which is round, club-shaped, fleshy, above of a purple colour, below whitish, standing in the centre of the sheath, and supporting the parts necessary to fructification; on tracing it towards the base, we first discover the nectaries, or several oval corpuscles, which are terminated by long tapering points; next to these, are placed the anthers, which are quadrangular, united, and of a purple colour; under these, we find again more nectaries; and lastly, the germens, which are very numerous, round, without styles, and crowned with small bearded stigmas.

This curious species of inflorescence displays itself early in spring, but the berries do not ripen till late in the summer, when they appear in naked clusters, of a bright scarlet colour, making a conspicuous appearance under the hedges where they commonly grow.

The root is the medicinal part of the plant, which, in a recent and lactescent state, is extremely acrimonious; and, upon being chewed, excites an intolerable sensation of burning and pricking in the tongue, which continues for several hours; when cut in slices and applied to the skin, it has been known to produce blisters. This acrimony, however, is gradually lost by drying, and may be so far dissipated by the application of heat, as to leave the root a bland farinaceous aliment.

This plant is seldom used medicinally, owing to the difficulty in procuring it in a state to be depended upon. The recent root, in doses of from ten to twenty grains, is said to be stimulant, diaphoretic, and expectorant; hence, it has been employed in chlorotic, cachectic, rheumatic cases, and humoral asthma. When given internally, however, it should be combined with some mucilaginous substance to sheath its acrimony.

RANUNCULUS ACRIS. UPRIGHT MEADOW CROWFOOT.

Class POLYANDRIA.

Ord. POLYGNIA.

Gen. Ch. Calyx, of five leaves. Petals, five or more, with nectaries in their claws. Seeds, numerous, naked.

¹ In France, it is dried and powdered, in which state it is used as a cosmetic.

Sp. Ch. Calyx, spreading. Flower-stalks, round and even. Leaves in three deep, lobed, and cut segments, the uppermost linear and entire.

Root, perennial, consisting entirely of long white slender fibres; stalk erect, branched near the top, round, hairy, about two feet in height; leaves on long, upright footstalks, trifid, subdividing in smaller laciniated lobes, marked beneath with small prominent reticulated veins; at the base of the peduncles the leaves are simple, linear, and fringed with hairs. Flowers yellow, terminal, on long, round, hairy peduncles. Calyx, of five leaves, which are ovate, spreading, hairy, yellowish. Corolla, of five petals, yellow, shining, heart-shaped, commonly notched at the top. Filaments, numerous, short, furnished with yellow inclining anthers. Nectary, a small scale at the base of each petal. Germens, numerous, forming an orbicular head. Styles, none. Stigmas, reflexed. Seeds, numerous, roundish, of a brown colour. It is a native of Britain, and grows in meadows and moist pastures, flowering in June and July.

The great acrimony of this, and many of the other species of ranunculus, is such, that on being applied to the skin, they excite itching, redness, and even produce blisters, tumefaction, and ulceration of the part. On being chewed, they corrode the tongue; and, if taken into the stomach, bring on all the deleterious effects of an

acrid poison. Mr. Curtis observes, that even pulling up this plant, and carrying it to some little distance, excited a considerable inflammation in the palm of the hand in which it was held.

It is necessary to remark, that the acrimonious quality of these plants is not of a fixed nature; for it may be completely dissipated by heat; and the plant, on being thoroughly dried, becomes perfectly bland.

The virulency of this plant, like many others, depends very much upon the situation in which it grows, and is much diminished by cultivation. In modern practice, this plant is seldom or never used medicinally; formerly, it was employed externally as a vesicatory, being said to produce a quicker effect than blistering plaster, and never causing strangury.

CHELIDONIUM MAJUS. GREATER OR COMMON CELANDINE

Class POLYANDRIA. Ord. Mc

Ord. MONOGYNIA.

Gen. Ch. Calyx of two leaves. Capsule of one cell. Seeds, crested.





Formerly, this plant was held in great repute, as the most effectual remedy that could be employed in hepatic obstructions, and also in obstructions of the lymphatic and mesenteric glands and other viscera.

In modern practice, the preference given to chemicals over galenicals has entirely superseded the use of many of our indigenous plants; and the celandine, like many others, is now expunged from our pharmacopæias', although it evidently possesses very active properties.

LOBELIA SIPHILITICA.

BLUE LOBELIA OR CARDINAL FLOWER.

Class SYNGENESIA.

Ord. MONOGAMIA.

Gen. Ch. Calyx, five-cleft. Corolla, one irregular petal. Capsule, inferior, two or three celled.

Sp. Ch. Stem, erect, Leaves, oval, pointed, minutely serrated. Calyx, segments reflex.

The root is perennial, and furnished with many white

¹ It was the principal ingredient in the decoctum ad ictericas of the Edinburgh Pharmacopæia.

fibres. The stem is upright, strong, simple, smooth, and rises upwards of two feet in height. The leaves, placed towards the top of the stem, are oval and pointed; those at the bottom are elliptical and obtusely lance-shaped; they are both minutely serrated, veined, smooth, and without footstalks. The flowers are numerous, large, blue, and grow in a long spike, upon short peduncles. The corolla consists of a long tube, which is nearly cylindrical, and divided at the limb into five-pointed oval segments, of a rich blue colour. The calyx is composed of five halberd-shaped leaves, which are fringed at the margin, and reflected at each side. The filaments are five, tapering, equal in length to the tube of the corolla, and closely connected at the top by the anthers. The germen is short and conical. The style is of the length of the stamens, and terminated by a blunt hairy stigma. The capsule is oval, and divided into two cells, which contain many small seeds.

It is a native of Virginia, and flowers from August till October.

It was first introduced into this country by Ray, the botanist, and it is now cultivated in many of our gardens as an ornamental plant.

Every part of the plant abounds with a milky juice, and has a rank smell. The root, which is the part directed for medicinal use, in taste resembles tobacco, and is apt to excite vomiting; it is also powerfully cathartic.

This lobelia siphilitica¹ was introduced into this country as a medicine of great efficacy for the cure of syphilis²; but there have been no confirmed cases of cures being effected by this plant in European practice; and it is now totally disregarded as a medicine of any efficacy in that disease.

ŒNANTHE CROCATA. HEMLOCK, WATER DROPWORT.

Class PENTANDRIA.

Ord. DIGYNIA.

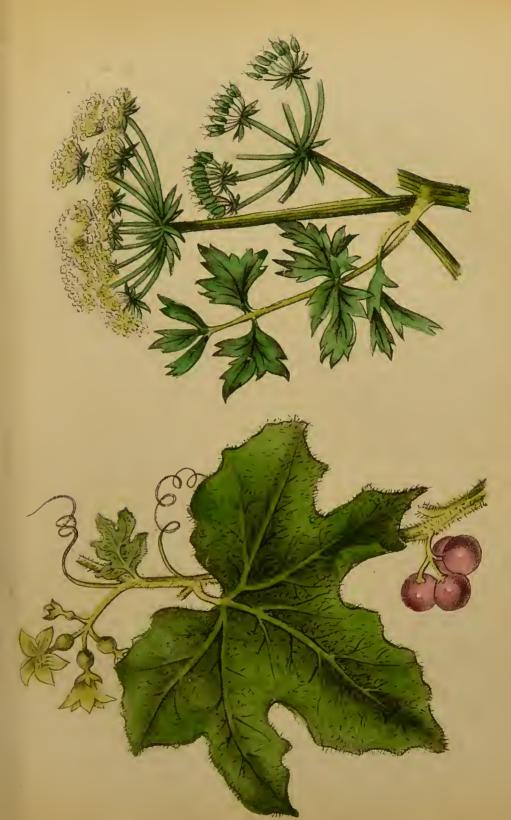
Gen. Ch. Fruit, ribbed, somewhat spongy. Calyx, large, lanceolate, acute, spreading, unequal. Petals, obsordate, radiant, very unequal. Flower receptacle, dilated, depressed. Flowers, separated.

Sp. Ch. Leaflets, all wedge-shaped, many-cleft, nearly uniform. Fruit, linear-oblong, with slender intermediate ribs.

The root is perennial, divided into numerous parts, or oblong tubercles, furnished with long slender fibres. Stalks erect, channelled, round, smooth, branched, of a

¹ It derived the name of siphilitica from its supposed efficacy in the cure of syphilis.

² The North American Indians considered it a specific in syphilis, with whom it was for a long time kept secret.



tity of the plant be eaten, the symptoms produced are sudden and violent; great heat in the throat and stomach, vertigo, succeeded by convulsions, and death quickly follows if the poisons be not speedily ejected by vomiting.

The plant is also poisonous to animals; a spoonful of the juice given to a dog, rendered him sick and stupid.

BRYONIA ALBA.

WHITE BRYONY.

Class MONŒCIA.

Ord. PENTANDRIA.

Gen. Ch. Barren flower. Calyx, with five teeth. Corolla, five-cleft. Filaments, three. Anthers, five.

Fertile flowers. Calyx, with five teeth. Corolla, five-cleft. Style, three-cleft. Berry, inferior. Seeds, few.

Sp. Ch. Leaves, palmate, rough on both sides with callous points. Flowers, diœcious.

it for wild celery), died within a few hours after eating it; the others, being vomited immediately, recovered.

¹ Goats, however, have been observed to eat of it with impunity.

White bryony is a native of Britain, flowering in May and June; it is common in woods and hedges.

The root is perennial, large, often a foot in circumference, tapering, branched, and of a whitish yellow colour. The stems are several yards in length, angular, slender, scandent, twisting themselves about the bushes for sup-The leaves are large, hairy, lobed, or palmated, lobes pointed; they stand alternately upon strong hairy footstalks. The flowers are of a yellowish green colour, produced in clusters at the footstalks of the leaves, and are male and female on different plants. The calyx of the male flowers is bell-shaped, and deeply divided into five narrow pointed segments. The corolla is also divided into five segments, which are ovate and spreading. The filaments are three, short, thick, and furnished with irregular anthers, of which two are said to be on each two of the filaments, and one on the third. The calyx and corolla of the female flower resemble those of the male, but are smaller. The germen is round, and placed below the flower. The style is strong, erect, of the length of the corolla, and divided at the top into three parts, which are bent downwards, and each furnished with a large triangular stigma. The fruit is a smooth red berry, containing five or six seeds.

The root of bryony, taken out of the ground in spring, abounds with a thin milky juice; if the top of the root be cut off transversly, the juice continues to rise gradu-

ally to the surface for some days successively. Both the root in substance and the juice have an unpleasant smell, and a nauseous bitter acrid taste. Applied to the skin for some time, they inflame and vesicate the part. A spoonful of the juice acts as a brisk cathartic; and the dried root in powder, in doses of from twenty to thirty grains, proves strongly purgative².

¹ Lewis, M. M. p. 165.
² Woodville, M. B. vol. i, p. 186.

CATALOGUE

OF

ACRID PLANTS NOT FIGURED.

NATIVES OF BRITAIN.

DAFFODIL. NARCISSUS PSEUDO-NARCISSUS.

Class HEXANDRIA. Ord. MONOGYNIA.

Gen. Ch. Corolla superior, of six petals attached to a bell-shaped nectary, which conceals the stamens.

Sp. Ch. Flowers, solitary. Cup of the nectary, bellshaped, erect, crisped, with six marginal segments: its length equal to that of the ovate petals.

‡ Found in moist woods and thickets. Flowers in March.

Properties. Emetic.

¹ The mark * answers to the term annual, † biennial, ‡ perennial § indicates that the plant is either arboreus or shrubbly.

HOUSELEEK. SEMPERVIVUM TECTORUM.

Class Dodecandria. Ord. Dodecagynia.

Gen. Ch. *Petals*, twelve. *Calyx* in twelve deep segments. *Capsules*, twelve.

Sp. Ch. Leaves fringed. Offsets spreading. Edges of the petals hairy, entire.

‡ Found on roofs and walls. Flowers in July.

Properties. Emetic and cathartic; applied externally, it produces vesications and erosions.

HEART'S-EASE.

VIOLA TRICOLOR.

Class PENTANDRIA.

Ord. MONOGYNIA.

Gen. Ch. Capsule of one cell and three valves. Calyx of five leaves, extended at the base. Corolla, irregular, spurred.

Sp. Ch. Stem, angular, diffuse, divided. Leaves, oblong, deeply crenate. Stipulas, lyrate, pinnatifid. Bracteas, obsolete.

* Found in fields and gardens. Flowers from May to September.

Properties. Aperient.

LOUSE-WORT. PEDICULARIS PALUSTRIS.

Class DIDYNAMIA. Ord. ANGIOSPERMIA.

Gen. Ch. Capsule of two cells. Seeds, pointed. Corolla, ringent. Upper lip, compressed.

Sp. Ch. Stem, solitary, branched. Calyx, ovate, hairy, ribbed, in two unequally notched lobes.

‡ Found in boggy pastures. Flowers in June and July.

Properties. Pungent and acrid.

LESSER SPEAR-WORT. RANUNCULUS FLAMMULA.

Class Polyandria.

Ord. POLYGYNIA.

Gen. Ch. Calyx of five leaves. Petals, five or more, with nectaries in their claws. Seeds, numerous, naked.

Sp. Ch. Leaves, ovate, lanceolate, bluntish, stalked. Stem, reclining. Root, fibrous. Seeds, smooth.

‡ Found in watery places. Flowers from July to September.

Properties. Acrid; externally applied, produces blisters, tumefaction, and ulceration of the part.

¹ In general, all the Ranunculi are more or less poisonous, even to cattle.

MARSH PENNY-WORT. HYDROCOTILE VULGARIS.

Class PENTANDRIA.

Ord. DIGYNIA.

Gen. Ch. Frond, nearly orbicular, rather broader than long, angular, much compressed. Juncture very narrow. Calyx, none. Petals, equal, ovate, undivided, spreading. Styles, cylindrical, shorter than the stamens, tumid at the base. Floral receptacle, none. Florets, all perfect, regular.

Sp. Ch. Leaves, orbicular, peltate, smooth, cloven at the base. Umbels, somewhat aggregate. Flowers, nearly sessile.

‡ Found in watery places. Flowers in May and June. *Properties*. Acrid.

PASQUE FLOWER. ANEMONE PULSATILLA.

Class POLYANDRIA.

Ord. POLYGYNIA.

Gen. Ch. Calyx, none. Petals, five to fifteen, imbricated. Seeds, numerous.

Sp. Ch. Flowers, solitary, nearly upright. Involucrum, in deep linear segments. Petals, six, erect. Seeds, with feathery tails. Leaves, doubly pinnate, cut, with linear lobes.

‡ Found in chalky pastures. Flowers in July.

Properties. Cathartic and emetic; externally applied, it produces violent inflammation of the part.

SPURGE LAUREL.

DAPHNE LAUREOLA.

Class OCTANDRIA.

Ord. Monogynia.

Gen. Ch. Calyx, coloured, four-cleft, inferior. Berry, with one seed.

Sp. Ch. Clusters, axillary, generally five-flowered, drooping. Leaves, obovate, lanceolate, evergreen. Calux, obtuse.

§ Found in thickets. Flowers in March and April. Properties. Cathartic and emetic.

VIRGIN'S BOWER. CLEMATIS VITALBA.

Class POLYANDRIA.

Ord. POLYGYNIA.

Gen. Ch. Calyx, none. Petals, from four to eight, valvular, or folded in at the edges. Seeds, tailed. Receptacle, capitate.

Sp. Ch. Leaves, pinnate. Leaflets, heart-shaped, partly cut, their stalks twining, permanent. Panicles, forked, not larger than the leaves.

§ Found in hedges, on a chalky soil. Flowers in July.

Properties. Acrid and caustic; applied externally, it produces excoriation and pustules; taken internally, inflammation of the stomach.

¹ In general, all the varieties of the spurge laurel are more or less poisonous.

WALL PEPPER.

SEDUM ACRE.

Class DECANDRIA.

Ord. PENTAGYNIA.

Gen. Ch. Capsules, five, each with a scale at the base. Corolla, of five petals.

Sp. Ch. Leaves, alternate, nearly ovate, thick, tumid, spurred at the base. Cyme, of three smooth branches, leafy.

‡ Found on walls and roofs. Flowers from June to August.

Properties. Emetic and cathartic; applied externally, it produces vesications and erosions.

WATER CROWFOOT. RANUNCULUS SCELERATUS.

Class POLYANDRIA.

Ord. POLYGYNIA.

Gen. Ch. Calyx, of five leaves. Petals, five or more, with nectaries in their claws. Seeds, numerous, naked.

Sp. Ch. Stem, erect, hollow, much branched. Leaves, smooth; lower ones, palmate; upper, fingered. Fruit, oblong. Seeds, minute, very numerous.

* Grows in watery places. Flowers in June and July. Properties. Acrid.

¹ This is one of the most poisonous of the Ranunculus family.

EXOTIC PLANTS.

BITTER APPLE. CUCUMIS COLOCYNTHIS.

Class MONCECIA. Ord. MONADELPHIA.

Gen. Ch. Male: Calyx, five-toothed. Corolla, fiveparted. Filaments, three. Female: Calyx, five-toothed. Corolla, five-parted. Pistil, three-cleft. Seeds of the gourd, argute.

* Africa, Cape of Good Hope. Flowers in June and

July.

Properties. Powerfully cathartic.

CROWN IMPERIAL. FRITILLARIA IMPERIALIS.

Class Dodecandria.

Ord. TRIGYNIA.

Gen. Ch. Corolla, four or five-petalled, fixed to the calyx. Calyx, one-leafed, ventricose. Capsule, tricoceous.

† Persia. Cultivated in our gardens. Flowers in May and June.

Properties. Acrid.

EUPHORBIUM. EUPHORBIA OFFICINARUM.

Class Dodecandria.

Ord. TRIGYNIA.

Gen. Ch. Corolla, four or five petalled, fixed to the calyx. Calyx, one-leafed, ventricose. Capsule, tricoceous.

‡ Africa. Flowers in March.

Properties. Powerfully cathartic, caustic, errhine, and rubefacient.

ELATERIUM. MOMORDICA ELATERIUM.

Class MONŒCIA.

Ord. MONADELPHIA.

Gen. Ch. Male: Calyx, five-cleft. Corolla, five-parted. Filaments, five. Female: Calyx, five-cleft. Corolla, five-parted. Style, trifid. Gourd, opening elastically.

* South of Europe. Flowers in June and July.

Properties. Powerfully cathartic.

GAMBOGE. STALAGMITIS CAMBOGIOIDES.

Class POLYGAMIA.

Ord. MONŒCIA.

Gen. Ch. Hermaphrodite. Calyx, four-leaved. Corolla, four-petalled. Stamens, thirty, inserted into a fleshy

four-angled receptacle. Style, thick. Stigma, four-lobed. Berry, one-celled, crowned by the style, three-seeded.

§ South of Europe. Flowers in June.

Properties. Powerfully cathartic and emetic.

HEDGE HYSSOP. GRATIOLA OFFICINALIS.

Class DIANDRIA.

Ord. MONOGYNIA.

Gen. Ch. *Corolla*, irregular, reversed. *Stamens*, two, sterile. *Capsule*, two-celled. *Calyx*, seven-leaved; the two exterior leaves spreading.

‡ South of Europe; cultivated in gardens. Flowers in June and July.

Properties. Cathartic, emetic, and diuretic.

IPECACUANHA. CEPHAELIS IPECACUANHA.

Class PENTANDRIA. Ord. MONOGYNIA.

Gen. Ch. Flowers, in an involucred head. Corolla, tubular. Stigma, two-parted. Berry, two-seeded. Receptacle, chaffy.

‡ South of Europe. Flowers in February and March. Properties. Emetic; in small doses, diaphoretic and expectorant.

POISON OAK. RHUS TOXICODENDRON.

Class Pentandria.

Ord. DIGYNIA.

Gen. Ch. Calyx, five-parted. Petals, five. Berry, with one seed; with ternate leaves.

§ North America; cultivated in some botanic gardens. Flowers in March and April.

Properties. Stimulant and narcotic.

PURGING NUT.

RICINUS MAJOR.

Class MONŒCIA.

Ord. MONADELPHIA.

Gen. Ch. Male: Calyx, five-parted. Corolla, none. Stamens, numerous. Female: Calyx, three-parted. Corolla, none. Styles, three, bifid. Capsule, three-celled. Seed, one.

* East and West Indies. Flowers in August and September.

Properties. The seeds, drastic cathartic. The expressed oil from the seeds, mildly purgative.

SCAMMONY. CONVOLVULUS SCAMMONIA. Class Pentandria. Ord. Monogynia.

Gen. Ch. Corolla, bell-shaped, plaited. Stigmas, two. Capsule, two-celled, each cell containing two seeds.

‡ Levant. Flowers in August and September. Properties. Drastic, and eructating cathartic.

STAVES-ACRE. DELPHINIUM STAPHISAGRIA.

Class POLYANDRIA.

Ord. TRIGYNIA.

Gen. Ch. Calyx, none. Petals, five. Nectary, bifid, horned behind. Pods, three or one. Three-capsuled.

* South of Europe; cultivated in gardens. Flowers in June.

Properties. Violently emetic and cathartic.

SAVINE.

JUNIPERUS SABINA.

Class DIŒCIA.

Ord. MONOGYNIA.

Gen. Ch. Male: Amentum, ovate. Calyx, a scale. Corolla, none. Stamens, three. Female: Calyx, three-parted. Petals, three. Styles, three. Berry, three-sided, irregular, with the three tubercles of the calyx.

‡ South of Europe and Levant; long cultivated in our gardens. Flowers in May and June

Properties. Stimulant, diaphoretic, and emmenagogue.

SQUILL.

SCILLA MARITIMA.

Class HEXANDRIA.

Ord. MONOGYNIA.

Gen. Ch. Corolla, six-petalled, spreading, deciduous. Filaments, thread-like.

‡ Spain, Sicily, Syria, and Barbary. Flowers in April and May.

Properties. Emetic and cathartic in large doses; diuretic and expectorant in smaller.

YELLOW RHODODENDRON. RHODODENDRON CRYSANTHEMUM.

Class DECANDRIA.

Ord. MONOGYNIA.

Gen. Ch. Calyx, five-parted. Corolla, nearly funnelshaped. Stamens, declined. Capsule, five-celled.

‡ Mountainous parts of Siberia; cultivated in some botanic gardens. Flowers in June and July.

Properties. Stimulant and diaphoretic.

NARCOTIC POISONS.1

PRELIMINARY OBSERVATIONS.

The denomination of this class of vegetable poisons is given to those which, being rapidly absorbed, produce stupor, sleep, paralysis or apoplexy, and convulsions.

The general effect of these poisons, when taken into the stomach, or introduced by absorption into the system, is to produce some of the following symptoms: heaviness of the head, stupor, numbness in various parts, pale countenance, sickness, and desire to vomit: at first slight, but afterwards becoming almost insupportable; a stupid air, and appearance of intoxication; furious or lively delirium; sometimes great pain in various parts; pupil of the eye generally dilated, and insensible to the impression of light; the pulse variable, but at first generally full and strong. To these symptoms succeed convulsions in various parts of the body, or palsy of the extremities, complete insensibility, and death.

The above symptoms are more or less violent according to the quantity or energy of the poisonous substance taken, and also to the susceptibility of the person to be effected by it: different narcotics will produce variable effects upon different individuals. Tobacco produces

¹ These poisons have been divided by some toxicological writers into narcotic and narcotico-acrid; the latter, partaking more or less of the somniferous and irritating qualities.

a general trembling rarely observed with other poisons. Foxglove increases the strength of the sanguineous system in some, and remarkably diminishes it in others; it also acts as a powerful diuretic with some. Water-hemlock has produced the following symptoms, in addition to those generally observed in this class of poisons: swelling of the face, with starting of the eyes, gnashing of the teeth, and tetanic contraction of the jaws. The berries of belladonna occasioned the following symptoms to one hundred and fifty soldiers who ate of them: dilatation and immobility of the pupil, almost complete insensibility of the eye to external objects, at least confused vision; injection of the conjunctiva by bluish blood; protrusion of the eye, which in some appeared as if it were dull, and in others ardent and furious; dryness of the lips, tongue, palate, and throat; confused cries, uttered with pain; and continual motion of the hands and fingers'. The distilled water of the laurus cerasus (common laurel) has caused almost instant death without convulsion or any other apparent commotion.

The individual symptoms alone, however, are not sufficient to determine the particular vegetable poison that has been taken; the symptoms above enumerated are more or less common to all the vegetables of this class.

¹ Journal de Sedillot, Decembre 1813, p. 364.

² Murray, App Medic. tom. iii, p. 213.

TREATMENT.

When any of the narcotic poisons have been taken in undue quantities', the stomach must be immediately evacuated, either by means of the stomach pump, or by some active emetic substance, prepared by dissolving, in one or two spoonsful of warm water, eight or ten grains of the sulphate of copper, twenty of the sulphate of zinc, or from three to five of tartarised antimony2; this dose is to be repeated every quarter of an hour, until full vomiting is produced; and these means may be assisted by tickling the throat with the finger, or a feather'; glysters composed of common salt, and water gruel, or soap dissolved in warm water, should be administered as soon as possible, to clear the bowels, and evacuate any of the poison that may have reached them. After the vomiting has ceased, active purgatives may be given; and when by these means as much as possible of

¹ Various preparations of some of these narcotic vegetables are very active and efficacious medicines; but they have sometimes been administered in undue doses, and fatal accidents have in consequence occurred.

² The dose of these substances must be varied according to the age of the patient; the above quantities being the medium dose for an adult person.

³ As one of the effects of these narcotic poisons is to deaden the energy of the stomach, and prevent the action of even the most powerful emetics, mustard beat up thin may in such cases be given with advantage, as it stimulates the stomach in the first instance, and then acts as an emetic.

the poison has been expelled, warm coffee, and vinegar diluted with water, may be drank alternately; but vegetable acids are on no account to be administered until the poison is expelled. If the above means fail in removing the stupor and drowsiness, which is sometimes extreme, recourse must be had to blood-letting, and most advantageously from the jugular vein; blisters should also be applied to the back of the neck and legs, and the attention roused by every possible means. The patient should also be kept as much as possible on his legs, if capable of standing. If the extremities become cold, warmth and friction should be resorted to, and unceasingly and perseveringly used.

LACTUCA VIROSA. STRONG-SCENTED WILD LETTUCE.

Class Syngenesia. Ord. Polygamia Æqualis. Lin.

Gen. Ch. Receptacle, naked. Down, stalked, simple. Calyx, imbricated, simple, cylindrical. Scales, membranous at the margin.

Sp. Ch. Leaves, horizontal, finely toothed. Keel, prickly.

Grong Genter Lettuce

in full flower; it should therefore be gathered for medicinal purposes in that season. The juice of this plant is said to be powerfully diuretic and narcotic. As a remedial agent, an extract prepared from the expressed juice is chiefly used as a substitute for opium, where, from some peculiar idiosyncracy, opium is inadmissible. It is also said to promote all the secretions, and to remove obstructions of the viscera.

CONIUM MACULATUM. COMMON HEMLOCK.

Class PENTANDRIA.

Ord. DIGYNIA.

Gen. Ch. Partial involucre, halved, three-leaved. Fruit, nearly globular, five-streaked, notched on each side. Sp. Ch. Stem, polished and spotted, much branched.

The root is biennial, tapering, sometimes forked, eight or ten inches long, and about the thickness of a finger.

As a diuretic, the expressed juice was greatly extolled by Dr. Collin, of Vienna, more than sixty years ago, who appears to have successfully treated many cases of dropsy and visceral obstructions without the aid of other remedies.

The stalk is five or six feet high, round, shining, beset with brown and purplish specks; towards the top. branched and striated; near the bottom, about three inches in circumference, and covered with a bluish exudation, appearing like a fine powder. The lower leaves are very large, tripinnated, of a shining green colour, standing upon long, striated, concave footstalks, which proceed from the joints of the stem. The upper and smaller leaves are bipinnated, and placed at the divisions of the branches. The flowers are white, produced in umbels, which are both universal and partial, and composed of several striated radii. The universal involucre' consists of five or seven leaves: these are lanceolated, whitish at the margin, and bent downwards; the partial involucre is composed of three or four leaves, which are placed on the outer side of the radial stalk. The petals are five, white, about the length of the corolla, and crowned with whitish anthers. The styles are two, filiform, inclining outwards, and terminated by round stigmas. The fruit is oval, striated, consisting of two irregularly hemispherical striated brownish seeds. This plant flowers in July, and is commonly found near dunghills, hedges, and on waste grounds. It has a peculiar faint

¹ The calyx of umbelliferous plants is termed involucre, and may be universal, partial, or proper, according as it is placed at the universal umbel, partial umbel, or flower.

fetid smell, and a slight aromatic, herbaceous, and somewhat nauseous taste.

This plant is distinguished from our other umbelliferous plants by its *large* and *spotted* stem, by the dark and *shining green colour* of its *lower leaves*, and also by their peculiar disagreeable odour', if bruised, when fresh.

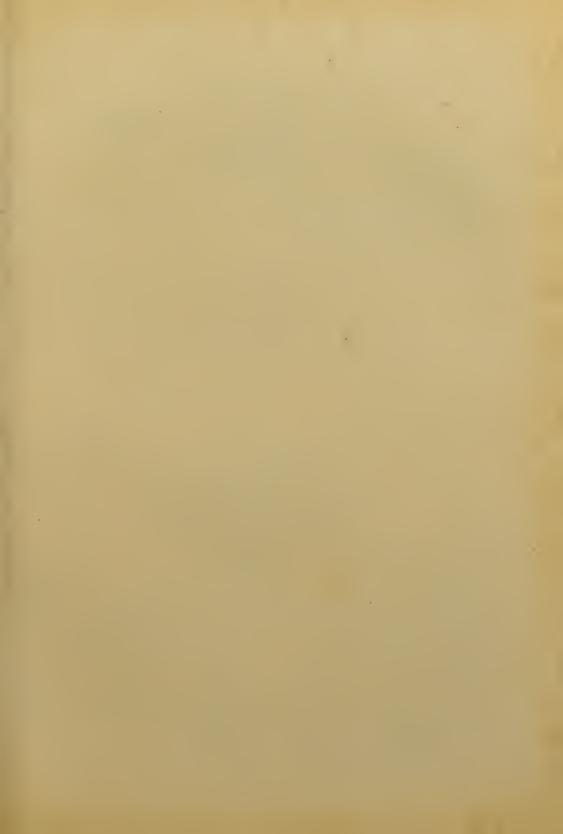
The caryophyllum bulbosum, bulbous-rooted cowparsley, has also a spotted stem; but its *joints* are *swelled*, and its *seeds rough*, which sufficiently distinguish it from the conium.

The leaves of this plant are strongly poisonous; many instances of their fatal effects which have occurred in this and other countries are on record. The root of hemlock, however, does not appear to possess any noxious power. We are told by Mr. Curtis, in the Flora Londinensis, that they have been eaten in the recent state and also boiled, in considerable quantities, without occasioning any inconvenience².

The symptoms produced by hemlock, when taken in an over dose, are: sickness, vertigo, dilatation of the pupils, delirium, great anxiety, stupor, and convulsions; followed by death, if the poison be not soon evacuated

¹ The smell is said to resemble the urine of a cat.

² Stoërck says that the milky juice of the root is so extremely acrid and deleterious, that a small drop or two of it, on being applied to his tongue, produced great pain and swelling of that organ, and for some time deprived him of the powers of speech.





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from the stomach. After the stomach has been effectually emptied, and the cerebral excitement diminished by bleeding and powerful cathartics, the best antidote to be administered is vinegar.

Although hemlock has long been employed as a medicine of great efficacy, we are indebted to Baron Stoërck, of Vienna, for bringing it into general notice; although he rated its powers too high, it is now generally considered to be a valuable addition to our Pharmacopæias. It is used both internally and externally as a narcotic, and is advantageously applied as a palliative in many complaints not curable by any other medicine.

Hemlock has also been found useful in ill-conditioned ulcers, glandular swellings, and chronic rheumatism, &c. The best mode of exhibiting hemlock is the dried leaves in the form of powder.

CICUTA VIROSA. WATER-HEMLOCK, COWBANE.

Class PENTANDRIA.

Ord. DIGYNIA.

Gen. Ch. Fruit, nearly orbicular, heart-shaped at the base, with six double ribs. Calyx, broad, acute, rather

¹ The Greek and Arabian physicians employed it as an external remedy for ulcers, tumors, and cutaneous eruptions.

unequal. Petals, ovate. Styles, scarcely tunid at the base.

Sp. Ch. *Leaves*, twice-ternate. *Leaflets*, linear-lanceolate, decurvent.

The root is perennial, thick, short, hollow, beset at the joints with numerous slender fibres. Stalk thick, round, fistular, striated, smooth, sparingly branched, about four feet in height. Leaves pinnated. Leafits usually placed in ternaries, spear-shaped, serrated. Serratures white at the points. Flowers in large expanding umbels. Partial involucrum composed of several short bristle-shaped leaves. Calyx scarcely discernible. Florets all uniform, fertile, each consisting of five petals, which are ovate, turned inwards, of a greenish white.

Filaments five, capillary, longer than the petals. Anthers simple, purplish. Styles two, at first close, afterwards divaricating. Stigmas simple. Fruit egg-shaped, divisible into two seeds, which are ribbed, and convex on one side, and flat on the other.

It grows on the borders of pools and rivers, flowering in July and August.

The root has a strong smell, and a warm, somewhat acrid taste; by distillation with water, it yields a volatile matter, which is of a narcotic quality, and of a very ungrateful odour.

It appears, from Bergius, that Water-hemlock, in its

dried state, may be taken in a considerable quantity, without producing any bad effects; but, of the fatal effects of its root when fresh, numerous instances are recorded.

The following symptoms have been observed to follow the taking of this poison¹: vertigo, cephalalgia, sometimes acute and excruciating, dryness of the throat, great thirst, eructation, vomiting of greenish matter, with fragments of the root, respiration frequent and interrupted, tetanic contraction of the jaws, lipothymia, sometimes followed by a state of lethargy and coldness of the extremities; at other times, attacks, more or less resembling epilepsy (especially in young persons) or furious delirium; in one or two cases, a swelling of the face, with starting of the eyes, has been observed². In most of the cases in which this plant proved fatal, the patients died in a convulsed or epileptic state. When the poison is speedily ejected by vomiting, only a slight degree of stupefaction was experienced for a few hours.

On dissection of the bodies of those who have died by eating the root of water-hemlock, it appears that the stomach and intestines were inflamed and in a gangre-

¹ Of two boys and six girls who ate of the root (mistaking it for parsnip), the greater part died in a short time, those only escaping who speedily discharged it by vomiting. It is said to be equally fatal to some animals. It is eaten with impunity by goats and sheep, but proves poisonous to cows.

² Guersent, Dictionnaire des Sciences Medicales, Article Cigue.

nous or eroded state, and the blood-vessels of the brain much distended.

The cicuta aquatica is superseded, as an internal medicine, by the common hemlock (conium maculatum); but it is said to relieve rheumatic and other pains, when applied externally, in the form of poultice.

DIGITALIS PURPUREA. COMMON FOX-GLOVE².

Class DIDYNAMIA. Ord. ANGIOSPERMIA.

Gen. Ch. Calyx, five-parted. Corolla, bell-shaped, five-cleft, bellying. Capsule, ovate, two-celled.

Sp. Ch. Calyx, segments, ovate, acute. Corolla, obtuse; upper lobe, scarcely cloven. Leaves, downy.

The root is biennial, branched, and fibrous. The stalk is erect, simple, tapering, covered with fine hairs or down, and rises commonly to the height of four or five

¹ Wepfer.

² This plant has derived its name from the resemblance of its flower to a finger of a glove.

feet. The leaves are large, oval, narrowed towards their points, obtusely serrated, veined, downy, and stand upon short winged footstalks. The floral leaves or bracteas, spear-shaped, sessile, purplish towards the point. calvx consists of five segments, which are elliptical, pointed, nerved, or ribbed, and the uppermost segment is narrower than the others. The flowers grow in a long terminal spike, chiefly on one side; they are large, monopetalous, pendulous, bell-shaped, purple, and marked on the inside with dark-coloured dots, placed in whitish rings; the tubular part appears inflated, and almost cylindrical, but swelling towards the base, and opening at the limb into four irregular, short, obtuse segments; of these, the uppermost is the shortest, appearing truncated or cut off transversely. The peduncles are round, short, villous, and drooping. The filaments are two long, and two short, white, crooked, inserted in the bottom of the tube, and crowned with large, oval, yellow anthers. The style is simple, and thickening towards the stigma, which is bifid. The germen is oval, and surrounded at the bottom by a small nectarious gland. The capsule is bilocular (two-celled), and contains many blackish seeds. It grows commonly about road sides and hedges, especially in dry gravelly soils¹, and flowers in June and July.

¹ This plant grows very abundantly on the shores of Kent, especially in the Isle of Dungeness.

The leaves of fox-glove have a bitter, nauseous taste, but no remarkable smell when recently gathered; when dried, they have a slight narcotic odour, which somewhat resembles new-made hay; and, when properly dried and powdered, should be of a fine green colour.

The deleterious properties of this plant are placed beyond all doubt, by the experiments made upon animals, and from the untoward accidents which have followed its exhibition in numerous instances; it may be ranked amongst the most energetic of the vegetable poisons.

Its action upon the animal economy is directly diuretic and sedative, producing a train of symptoms, which, if not arrested, terminate in death.

The usual symptoms following an over-dose of the plant are: nausea, vomiting or purging, vertigo, pulse intermitting, at first accelerated, but gradually diminishing both in frequency and strength, indistinct vision; and, if a larger portion has been inadvertently administered, hiccough, cold-sweats, syncope, delirium, and death. Digitalis acts powerfully upon the vital functions, diminishing the frequency and force of the pulse: but its effects on the organs of circulation vary according to the susceptibility and disposition of individuals to be affected by it; in some, the pulsations of the heart are remarkably relaxed from the beginning; in others, accelerated, strong, and intermitting. In moderate doses, its effect is frequently to raise the pulse from 70 to 90 or 100, or more;

but, at the expiration of twenty-four hours, or sooner, it begins to sink, and becomes reduced both in frequency and force. The deleterious effects of an over-dose are best counteracted by opium and cordials; blisters may sometimes be required.

Fox-glove, as a remedial agent, is one of the most valuable medicines in the Materia Medica. When judiciously employed, its powers are very great, independent of its sedative effects, in lessening the impetus of vascular action: hence its employment and good effects in inflammatory diseases (particularly in active hæmorrhages from the uterus, in mania, &c.): its diuretic properties are very considerable and certain; and, in dropsy, its effects are most useful, particularly in relaxed constitutions, where the skin is cold, with a pale countenance and feeble, intermitting pulse. It is also used, with beneficial effects, in pulmonary consumption, hooping cough, and spasmodic affections.

¹ Dr. Withering first introduced Fox-glove as a diuretic, for the cure of dropsy, in 1775. See an Essay on the Medical Properties of Digitalis.

ARISTOLOCHIA CLEMATITIS. CLIMBING BIRTHWORT.

Class GYNANDRIA.

Ord. HEXANDRIA.

Gen. Ch. Calyx, of one leaf. Corolla, none. Stigma, with six lobes. Capsule, of six cells.

Sp. Ch. Leaves, heart-shaped. Stem, erect. Flowers, aggregate, axillary, upright. Calyx, unilateral.

Root perennial, cylindrical, long, slender, creeping, fibrous. Stalks simple, slender, striated, two feet in height, round, smooth, in a somewhat zigzag direction. Leaves on footstalks, alternate, smooth, heart-shaped, blunt, of a shining bright green on the upper side, beneath veined. Flowers numerous, at the axilla of the leaves, of a greenish yellow. Calyx none. Corolla monopetalous, tubular, tube nearly cylindrical, at the base round, at the mouth wider, and extended downwards into a long tongue. Filaments none. Anthers six, growing underneath the stigma. Germen oblong, angular, placed below the corolla. Style very short. Stigma roundish, divided into six portions. Capsule hexagonal, six-celled. Seeds numerous, small, flattish.



It is a native of this country, growing in woods and hedges, and producing its flowers from July till September.

The root, which is the part medicinally used, has a somewhat aromatic smell, and a warm bitterish taste.

Orfila ranks the Aristolochia clematitis amongst the narcotico-acrid poisons, and relates several experiments he made upon dogs, in order to ascertain its effects upon the animal economy; to all of which he administered the root of this plant; it produced stupefying symptoms, and they all died within forty-eight hours: hence he concludes, that the climbing birthwort exerts a stupefying action on the nervous system, and that it produces a slight inflammation in the texture to which it is applied. The symptoms produced were: slight convulsive movements, debility of the posterior extremities, dejection, heaviness of the head, and deep inspiration, followed by death. The root of this plant was formerly esteemed a medicine of considerable efficacy, particularly for the cure of chlorosis, for promoting the lochia, and as a remedy for gout; but it is now seldom, if ever, prescribed.

ATROPA BELLADONNA. DEADLY NIGHTSHADE.

Class PENTANDRIA.

Ord. MONOGYNIA.

Gen. Ch. Corolla, bell-shaped. Stamens, distant. Berry, globular, two-celled.

Sp. Ch. Stem, herbaceous. Leaves, ovate, entire. Flowers, solitary, drooping.

The root of Belladonna is perennial, thick, whitish, and sends forth strong, branched, annual, purple-coloured stems, from three to five feet high. The leaves are of unequal size, entire, oval, pointed, and stand in pairs upon short footstalks. The flowers are pendent, of a dark brownish purple colour, monopetalous, bell-shaped, furrowed. The filaments are shorter than the corolla, nodding, and bear large anthers. Style simple, supporting a two-lobed stigma. The whole plant is covered with fine hairs or down. The germen is superior, egg-shaped, and divided into two cells, each containing several oval or kidney-shaped seeds. The flowers appear in June or July, but the berries are not ripe till September, when they acquire a shining black colour. It grows in shady and strong waste grounds, but thrives best on calcarious soils.

Belladonna has been long known as an energetic poison of the narcotic kind; and the berries, though less powerful than the leaves, furnish us with many instances of their fatal effects, particularly upon children, who are readily tempted to eat this fruit by its alluring appearance and sweet taste.

¹ Journal Général de Médecine, liv. xxiv, p. 244.

The symptoms of poisoning by Belladonna are those of intoxication¹, accompanied with violent gestures and fits of laughter, great thirst, painful deglutition and retching; the eyelids are drawn down, the pupils are dilated, the face becomes red and tumid, and the pulse is small, hard, and quick; delirium, stupor, paralysis of the intestines, coma and convulsions, and death, follow. From the above symptoms, it appears that Belladonna acts on the nervous system, and particularly on the brain. Dissections shew that it also exerts a local action, exciting inflammation of the intestines, mesentery, and liver; erosions have been discovered in the stomach, and the heart livid². After death, the body rapidly decomposes, and blood flows from the mouth, nose, and ears.

The number of berries necessary to produce deleterious effects probably depends upon the state of maturity in which they are gathered, or the susceptibility of the person to that particular poison. According to Haller³, no bad symptoms ensue from eating three or four; but, if a greater number be taken, scarcely half an hour elapses before violent symptoms supervene.

¹ The Scotch historian, Buchanan, relates that the Scots mixed a quantity of the juice of the Belladonna with the bread and drink, which, by their truce, they were to supply the Danes with, which so intoxicated them, that the Scots killed the greatest part of Sweno's army while asleep.

⁹ Histoire de l'Academie des Sciences, année 1706.

³ Hal. Stirp. Helv. No. 579.

To obviate the effects of this poison, emetics of sulphate of copper or of zinc should be immediately administered, assisted also by irritating the fauces: the bowels should be evacuated by active aperients and enemas; after which, vinegar or other vegetable acids, liberally drank, have been found very efficacious.

Belladonna has been medicinally administered in a great variety of disorders with much benefit: viz. scirrhus, cancer¹, chronic rheumatism, gout, paralysis, amaurosis, pertussis, convulsions arising from scrophulous irritation², and in neuralgia facialis³.

This plant appears to have been first used as an external application, to discuss cancerous tumours, and also to ill-conditioned ulcers; the good effects derived from its external application, induced physicians to employ it internally in the same and other disorders; and a number of well-authenticated facts prove that Belladonna, when judiciously administered; is a very important remedy.

¹ Cullen, De Haen, Junker, and others.

² Hufe. Thomson.

³ See Observations on the Use of Belladonna, by John Bailey.





DATURA STRAMONIUM. COMMON THORN APPLE.

Class PENTANDRIA.

Ord. MONOGYNIA.

Gen. Ch. Corolla, funnel-shaped, plaited. Calyx, tubular, angled, deciduous. Capsule, with four valves.

Sp. Ch. Capsule, beset with sharp spines. Leaves, oval, pointed, and cut into many segments, smooth, shining.

The root is large, annual, white, divided, and fibrous. The stalk is thick, erect, round, smooth, shining, below simple, above dichotomous, and rises about two feet in height. The leaves are alternate, large, broad towards the base, pointed at the extremity, indented, and formed into several obtuse angles, smooth, of a dark green colour, and standing upon strong, round, short footstalks. The flowers are solitary, large, white, and placed on short, erect peduncles, at the junction of the branches. The calyx is of one leaf, tubular, pentangular, and divided at the brim into five segments. The corolla is monopetalous, funnel-shaped, plicated, and cut at the margin into five segments. The filaments are tapering, about the length of the calyx, adhering to the tube, and support oblong flat anthers.

The germen is oblong, and placed above the insertion of the corolla. The style is filiform, equal in length to the filaments, and terminated by a thick, blunt stigma. The capsule is oval, fleshy, beset with spines, and divided into three cells, which contain numerous kidney-shaped seeds. It grows wild in this country¹, about dunghills, rubbish, and in gardens, flowering in July. This plant has been long known as a powerful narcotic poison. The stramonium in its recent state, has a bitterish taste, and a smell somewhat resembling that of poppies, especially if the leaves be rubbed betwixt the fingers. By holding the plant to the nose for some time, or sleeping in a bed where the leaves are strewed, giddiness of the head and stupor are said to be produced.

Every part of the plant appears to possess a narcotic power; but the seeds are the only part of whose fatal effects we find instances recorded. According to Haller, Stöerck, and other writers, the following symptoms have been observed to take place in those who have taken an over-dose of this poison: intoxication², drowsiness, loss of sense and memory, transitory or permanent delirium,

¹ Stramonium is a native of America, but is now naturalized to this country.

² It is recorded to be sometimes used by the Turks instead of opium, or as a substitute for wine; and the Chinese infuse the seeds in beer. Spratt's Hist. of the Roy. Soc. 162.

a sort of madness and fury¹, convulsions, paralysis², cold sweats, and excessive thirst and tremblings. Hence it appears, that the effects of stramonium are very violent, that it acts powerfully upon the nervous system, and particularly upon the brain.

Baron Stöerck appears to have first brought the thornapple into notice as an internal remedy in cases of epilepsy and mania. But to Dr. Barton, of America, the profession is indebted for the most decisive experiments to ascertain its effects: an extract, prepared with the expressed juice of the leaves, has been usually the mode of exhibiting this medicine, and it has been found very efficacious in severe chronic pains. The powdered leaves mixed with simple ointment, applied to hæmorrhoids, relieves the pain. In the paroxysms of spasmodic asthma, smoking the plant in the manner of tobacco, is said to afford relief. Cataplasms, prepared with the fresh-bruised leaves,

¹ It is related that a decoction, prepared with three capsules of stramonium with milk, produced paralysis of the whole body, and the patient became mad; he remained in that state during seven hours, then recovered his senses, and slept quietly during the night. (Swaine, Essays and Observat. Physiol and Liter. vol. ii, p. 247.)

² A man, having drank some decoction of the fruit, became melancholy, and lost his voice; his pulse disappeared, and his limbs were paralyzed. Another, having drank some milk, in which some of the capsules had been boiled, experienced vertigoes, became insensible, his pulse became small and quick, and his legs were paralyzed. (Vicat, op. citat. p. 240.)

have been successfully used as an application to inflammatory tumours, and for discussing masses of indurated milk in the breasts of nurses.

NICOTIANA TABACUM. VIRGINIAN TOBACCO.

Class PENTANDRIA.

Ord. MONOGYNIA.

Gen. Ch. Corolla, funnel-shaped, with the border plaited. Stamens, inclined. Capsules, two-valved, two-celled.

Sp. Ch. Leaves, sessile, decurrent, oblong, acute, pointed. Segments, of the flower, acute.

The root is annual, large, long, and fibrous. The stalk is erect, round, hairy, branched towards the top, and rises to the height of five or six feet. The leaves are numerous, large, oblong, pointed, entire, veined, viscous, and without footstalks. The bracteas are long, linear, and pointed. The flowers terminate the stem and branches, in loose clusters or panicles. The corolla is monopetalous, funnel-shaped, with a long hairy tube, which gradually swells towards the limb, where it divides

into five acute-pointed segments. The calyx is hairy, about half the length of the corolla, divided into five narrow segments. The filaments are tapering, bent inwards, and support oblong anthers. The germen is oval. The style long and slender. The stigma round and cleft. The capsule is oval, divided into two cells, which contain many small roundish seeds. This plant is a native of America, flowering in July and August¹.

The leaves of this plant, when dried, form the well-known drug called tobacco; and, when reduced to powder, denominated snuff; in either form, they are endued with energetic poisonous properties.

Tobacco, when taken into the stomach in small doses, produces nausea, sickness, vomiting, and purging; in larger quantities, giddiness, stupor, trembling, great debility, convulsions or apoplexy, and death. From the experiments which have been made upon living animals by M. Brodie and others, it appears, that tobacco produces its effects upon the heart, through the medium of the nerves. Tobacco, whether taken into the stomach, sniffed up the nostrils under the form of snuff, or applied externally to the skin, produces the same effects. Numerous

¹ It was first cultivated in England in 1570; formerly, it was raised to a considerable extent in Yorkshire; but its cultivation for traffic has long been prohibited in this country, and most parts of Europe are now chiefly supplied from Virginia.

instances are recorded of its poisonous qualities; among which, we select the following examples: the celebrated Santeuil died from having drank a glass of wine, into which had been put some Spanish snuff; he suffered violent pains, accompanied with severe vomiting.

A person fell into a state of somnolency, and died apoplectic, in consequence of having taken by the nose an immoderate quantity of snuff¹. Two instances of the same kind, occasioned by smoking seventeeen or eighteen pipes of tobacco, are related in Hellwig, Obs. Phys. Med. p. 45. A decoction of the leaves applied to parts affected with itch, produced violent vomitings and convulsions².

The oil of tobacco, obtained by distilling the leaves, is possessed of very energetic powers³; applied to a wound, it is said by Redi to be as fatal as the poison of a viper⁴; administered to pigeons, it produced fatal effects

¹ Ephemerides des Curieux de la Nature.

² Vandumond, Recueil Periodique, tom. vii, p. 47.

³ The poisonous effects of this oil are very powerful. Mr. Barrow, speaking of the use which the Hottentots make of tobacco-oil for destroying snakes, says, "A Hottentot applied some of it from the short end of his wooden tobacco-pipe to the mouth of a snake while darting out his tongue. The effect was instantaneous as an electric shock: with a convulsive motion that was momentary, the snake half untwisted itself, and never stirred more; and the muscles were so contracted, that the whole animal felt hard and rigid, as if dried in the sun."—Travels in Africa, p. 268.

⁴ Experim. Nat. p. 8, 50, 315.

and was constantly attended with vomiting. M. Brodie placed one drop of the empyreumatic oil of tobacco upon the tongue of a young cat: immediately the breathing became accelerated, and violent convulsions ensued. Five minutes afterwards, the animal became insensible, lay down on its side, and was from time to time slightly convulsed; soon after, it appeared recovered, when the oil was again applied, and the animal died at the end of two minutes.

Tobacco, when introduced into the rectum, produces the same poisonous effects as when taken into the stomach. The active properties of tobacco appear to reside in that portion which is soluble in water².

The use of tobacce, like other narcotics, may be introduced by degrees, so that its peculiar effects, even when large quantities are employed, may not be noticed: viz. in persons who have long accustomed themselves to smoking or taking snuff³. Tobacco, as a medicine, possesses emetic, cathartic, diuretic, and narcotic properties; but its general effects are too violent for internal exhibition: it is chiefly employed in infusion, as an enema, in obstinate constipation, or incarcerated hernia, or the

¹ Vide Phil. Trans. vol. lxx.

² According to Vanquelin, the active properties of tobacco reside in a peculiar substance named *nicotin*. Ann. de Chimie, tome lxxi, p. 130.

³ Its effects as a sternutatory are so well known, that we think it nunecessary to enlarge upon the subject.

smoke is thrown into the rectum by means of a pair of bellows constructed for the purpose.

The infusion is sometimes employed as an external application to some cutaneous eruptions: as porrigo, scabies, &c.; but, even as an external remedy, it requires to be used with much caution.

SOLANUM DULCAMARA. WOODY NIGHTSHADE.

Class PENTANDRIA.

Ord. MONOGYNIA.

Gen. Ch. Corolla, wheel-shaped. Anthers, slightly coalescing, opening by two pores at the apex. Berry, two-celled.

Sp. Ch. Stem, shrubby, zigzag, without thorns. Upper leaves, hastate. Clusters, cymose.

The stalk is slender, climbing, alternately branched, somewhat angular, brittle, hollow, and frequently rises above six feet in height; it is covered with bark of an ash-colour, and that of the young branches is of a purple





line. The leaves are long, oval, pointed, veined, and of a deep green colour; many of those near the top are halbert-shaped; but the lower leaves are entire. The flowers hang in loose clusters or cymæ. The corolla is of a fine purple colour, monopetalous, wheel-shaped, divided into five pointed segments, which are bent backwards, and the base of each marked with two round green spots; the tube is short, and the faux or mouth is of a shining black colour. The calyx is small, and divides into five obtuse persistent segments of a purple colour. The filaments are short, black, and inserted in the tube of the corolla. The anthers are yellow, erect, and unite at their points. The style is somewhat longer than the stamens, and supports a simple obtuse stigma. The germen is oval, and becomes a roundish, bilocular, green berry, which finally acquires a red colour, and contains many flat, yellowish seeds. It grows plentifully in hedges well supplied with water, and flowers about the latter end of June.

The roots and stalks of this nightshade, upon being chewed, first cause a sensation of bitterness, which is soon followed by a considerable degree of sweetness; and hence the plant obtained the name of bittersweet.

"The berries seem to act powerfully upon the prime viæ, exciting violent vomiting and purging: thirty of them were given to a dog, which soon became mad, and died in the space of three hours; and, upon opening his stomach, the berries were discovered to have undergone no change by the powers of digestion¹."

There can, therefore, be little doubt of the deleterious effects of these berries; and, as they are very common in the hedges, and somewhat resemble red currants, they may be easily mistaken for them by children; hence the necessity of cautioning them not to pluck them.

The solanum dulcamara does not seem to possess very energetic properties. M. Duval administered a watery extract of the plant, in large doses, to dogs, without producing any remarkable effects; and M. Fages, of Montpellier, employed the watery extract, in a very strong dose, to a man affected with herpetic eruption, without his experiencing any untoward symptom. Dr. Cullen, in describing the medical properties of the solanum, says, "we have employed only the stipites or slender twigs of this shrub; but, as we have collected them, they came out very unequal, some parcels of them being very mild and inert, and others of them considerably acrid."

¹ Floyer, Pharm. p. 86.

PAPAVER SOMNIFERUM. WHITE POPPY.

Class POLYANDRIA.

Ord. MONOGYNIA.

Gen. Ch. *Corolla*, four-petalled. *Calyx*, two-leaved. *Capsule*, one-celled, opening by pores under the persistent stigma.

Sp. Ch. *Capsule*, nearly globular, smooth, as well as the calyx and stem. *Leaves*, notched, clasping the stem.

The root is annual, tapering, and branched. The stalk is round, smooth, erect, often branched, of a glaucous green colour, and rises two or three feet in height. The leaves are alternate, large, ovate, lobed, smooth, deeply cut into various segments, and closely embrace the stalk. The flowers are very large, terminal, of a white or purplish colour. The calyx consists of two leaves, which are ovate, smooth, concave, bifid, and fall off on the opening of the flower. The corolla consists of four large, roundish, entire, undulated petals. The filaments are numerous, slender, much shorter than the corolla, and furnished with oblong, erect, compressed anthers. The germen is globular, and supports a large, flat, radiated stigma, which forms a kind of crown. The

capsule is one-celled, smooth, divided half way into many cells, which open by several apertures beneath the crown, and contain numerous small white seeds. It is a native of England, usually growing in neglected gardens, or uncultivated rich grounds, and flowers in July and August.

The seeds, according to some authors, possess a narcotic power, but there is no foundation for this opinion: they consist of a simple, farinaceous matter, united with a bland oil, and in many countries are eaten as food.

The heads or capsules of the poppy, like the stalks and leaves, have an unpleasant smell, somewhat like that of opium, and an acrid, bitterish taste. Both the smell and taste reside in a milky juice, which more especially abounds in the cortical part of the capsules; and, in its concrete state, constitutes the officinal opium. These capsules are powerfully narcotic or anodyne: boiled in water, they impart to the menstruum their narcotic juice, together with the other juices which they have in common with vegetable matters in general.

Opium, as we have already observed, is obtained from the heads or capsules of this species of poppy, and is imported into Europe, from Persia, Arabia, and other warm regions of Asia.

Opium, taken into the stomach, in an immoderate dose, proves a narcotic poison: producing vertigo, tremors, convulsions, delirium, stupor, stertor, and finally fatal apoplexy.

THE DIAGNOSTIC SYMPTOMS of a poisonous dose of opium are: comatose state of the person, insensibility to light, heat, and noise; no spontaneous vomiting, excepting, perhaps, at the commencement of the case; the pupils are generally contracted by opium, while their dilatation is consequent on the other narcotics.

TREATMENT. Vomiting to be promoted by powerful emetics (and the stomach-pump may be used to get rid of the poison), followed by purgative glysters. Acids must not be given while any of the poison is suspected to remain; continued agitation and rousing of the party under its effects to be particularly attended to. After its stupefying effects are got rid of, and the poison expelled, strong coffee, acidulous drinks, and gentle stimulants, are recommended.

Opium is the chief narcotic now employed; it acts directly upon the nervous power, diminishing the sensibility, irritability, and mobility of the system; and, in a certain manner, suspending the motion of the nervous fluid to and from the brain, and thereby inducing sleep, one of its principal effects. From this sedative power of opium, by which it allays pain, inordinate action, and restlessness, it naturally follows, that it may be employed with advantage in a great variety of diseases. Indeed, there is scarcely any disorder in which, under some circumstances, its use is not found proper. Besides the sedative power of opium, it is known to act more or less as a

stimulant, exciting the motion of the blood; but this increased action has been ingeniously, and, as we think, rationally ascribed to that general law of the animal economy, by which any noxious influence is resisted by a consequent reaction of the system. By a certain conjoined effort of this sedative and stimulant effect, opium has been thought to produce intoxication, a quality for which it is much used in eastern countries.

Respecting the external application of opium, authors seem not sufficiently agreed. Some alledge that, when applied to the skin, it allays pain and spasm, procures sleep, and produces all the salutary or dangerous effects which result from its internal use; while others assert, that, thus applied, it has little or no effect whatever. But there is no doubt that, when mixed with caustic, it diminishes the pain, which would otherwise ensue, probably by decreasing the sensibility of the part. Injected up the rectum, it has all the effect of opium taken into the stomach; but to answer this purpose, double the quantity is to be employed. Applied to the naked nerves of animals, it produces immediate torpor, and loss of power in all the muscles with which the nerves communicate.

PARIS QUADRIFOLIA.

HERB PARIS.

Class viii, OCTANDRIA. Ord. iv, TETRAGYNIA.

Gen. Ch. Calyx, four-leaved. Petals, four. Berry, superior. Seeds, numerous, globose.

Sp. Ch. Leaves, ovate, about four.

The root is creeping. The stem rises to about a foot in height, erect, round, smooth, and leafless, except at the top. The leaves are from four to six in number, and spread horizontally in a sort of whorl at the top of the stem; they are ovate, pointed, entire, smooth, with three principal veins, and of a dull green colour. The flower is solitary, on an angular peduncle, about an inch in length. The calyx is composed of four lanceolate leaves. The corolla consists of four linear, acute petals, of a green colour, which, with the calyx leaves, remain till the fruit be ripe. The anthers are long, and are inserted into both sides of short filaments, at their base. The germen is somewhat globular, and supports four styles shorter than the filaments, crowned with simple stigmas. The fruit is a four-celled berry, of a purplish-black colour when ripe, containing numerous seeds in a double series.

'The Paris quadrifolia' is a perennial plant, growing in groves and moist woods in several parts of England; it is a native of many countries of Europe, but is rare in Britain².

Herb Paris is a narcotic poison, producing energetic effects when taken into the stomach in any considerable quantity: viz. nausea, vomiting, vertigo, delirium, and convulsions. Every part of the plant is deleterious, but the berries and leaves are the most active. The berries proved fatal to a child who ate them; and Gesner asserts that they are noxious to poultry. M.M. Coste and Willemet who have investigated the properties of this plant, recommend the root as a substitute for ipecacuanha, in doses of from one to two scruples. Linneus also says that, in doses of twenty to forty grains, it operates as a gentle emetic.

² It has been found at Crossy, near Norwich; in a wood near Hempsleat; at Selborne, in Hampshire; near Hanfield, Middlesex; and some other places.

¹ There are only two species of this plant known; the one we have figured, and the Paris polyphilla lately discovered in Nepal, and which is a very powerful poison.





HYOSCYAMUS NIGER. BLACK HENBANE.

Class PENTANDRIA.

Ord. MONOGYNIA.

Gen. Ch. Capsule, two-celled, with a lid. Corolla, funnel-shaped. Stigma, capitate.

Sp. Ch. Leaves, sinuated, clasping the stem. Flowers, sessile.

Henbane is a biennial plant, the root is long, compact, white, and fibrous. The stalk is annual, and rises about two feet in height, round, woody, and branched. The leaves are large, and cut into irregular segments, undulated, woolly, of a sea-green colour, and embrace the stem. The flowers are of a yellowish colour, and produced in irregular clusters at the top of the branches; they are funnel-shaped, divided into a short tube, with an expanded limb, which is divided into five obtuse segments. The calyx is divided into five short segments. The filaments are tapering, downy at the base, inserted in the tube of the corolla, and support large oblong anthers. The germen is roundish, slender, longer than the filaments, and terminated by a blunt stigma. The capsule is oval, marked with a line on each side, and divided into

two cells, which contain numerous small irregularly shaped brown seeds.

It is a native of Britain, and is usually found growing amongst rubbish, about road sides, &c.; flowering in June.

Henbane is a powerful narcotic poison, and, when taken in sufficient quantity, produces very dangerous and terrible symptoms. The roots, leaves, and seeds, have separately given rise to the same poisonous effects.

The general symptoms of poisoning by henbane are; sickness, stupor, dimness of sight, hard pulse, vertigo, delirium and coma, with dilatation of the pupils, and convulsions, and death follows, unless the poison is speedily evacuated. Of those who ate of the root, it is related, that several were seized with contortion of the limbs, risus sardonicus, and had their mouths drawn backwards and firmly closed¹; some experienced a burning pain of the tongue, lips, and throat; others, severe pain in the iliac region and in all their joints².

Effects equally violent ensue from taking the seeds. Four children who ate the seeds, mistaking the capsules for filberts, were attacked with swimming of the head, dimness of sight, great thirst, raving, and profound sleep; which last, in one of the children, continued for two days and

¹ Vide Phil. Trans. vol. xl, p. 446.

² Wepfer. Cicutæ Aquaticæ Historia et Noxæ, p. 232.

nights¹. Those who ate of the leaves became affected with similar symptoms. A decoction of the leaves, administered to a person in a glyster, produced, in a very short time, extreme redness of the face, stiffness of the tongue, numbness and loss of motion of the right arm and leg, and great propensity to sleep; in fact, almost all the symptoms which characterize an attack of apoplexy, except the stertor and distortion of the mouth².

In small doses it is a very useful medicine, in cases where opium would be inadmissible, acting as a powerful sedative without confining the bowels.

NARCOTIC PLANTS NOT FIGURED.

NATIVES OF BRITAIN.

BANE-BERRIES.

ACTÆA SPICATA.

Class Polyandria.

Ord. MONOGYNIA.

Gen. Ch. Calyx, of four leaves. Berry, of one cell. Seeds, depressed, over each other in two rows.

<sup>Phil. Trans. vol. xxxviii, p. 99.
Traité de Médecine Légale, tom. iv, p. 25.</sup>

Sp. Ch. Cluster, dense, ovate. Petals, the length of the stamens.

‡ Found on bushy mountains. Flowers in May and June.

Properties. Narcotic.

DARNEL.

LOLIUM TEMULENTUM.

Class TRIANDRIA.

Ord. DIGYNIA.

Gen. Ch. Calyx, of one principal valve opposite to the stalk, fixed, many-flowered.

Sp. Ch. Awns, longer than the corolla. Spikelets, shorter than the calyx. Florets, elliptical. Stem, rough in the upper part.

* Found in fields. Flowers in July.

Properties. Sedative and narcotic.

FOOL'S PARSLEY¹. ÆTHUSA CYNAPIUM.

Class Pentandria.

Ord. DIGYNIA.

Gen. Ch. Seeds, ovate, convex, with five tumid,

¹ This plant having often been mistaken for edible parsley, the following characters will serve to distinguish them: the leaves of the fool's parsley are of a dark blackish green on the upper side, and shining. They have no smell without being bruised, but give out a nauseous smell when rubbed between the fingers. The root is smaller than the parsley, and dies every year in autumn.

rounded, acutely keeled *ribs*. *Interstices*, deep, acute, angular. *Border*, none. *Calyx*, minute, pointed. *Petals*, obcordate, scarcely irregular. *Floral receptacle*, none. *Florets*, all perfect, scarcely radiant.

Sp. Ch. Leaves, uniform. Leaflets, wedge-shaped, decurrent, with lanceolate segments.

* Found in cultivated fields. Flowers from July to August.

Properties. Narcotic and emetic.

EXOTIC PLANTS.

CAMPHOR.

LAURUS CAMPHORA.

Class Enneandria.

Ord. MONOGYNIA.

Gen. Ch. Calyx, none. Corolla, calycine, six-parted. Nectary, of three two-bristled glands, surrounding the germen. Filaments, interior, glanduliferous. Drupe, one-seeded.

§ Native of Japan and China. Cultivated in greenhouses.

Properties. Stimulant, narcotic, and diaphoretic.

COMMON LAUREL.

LAURUS CERASUS.

Class ICOSANDRIA.

Ord. MONOGYNIA.

Gen. Ch. Calyx, five-cleft, inferior. Petals, five. Fruit, drupous.

§ Native of the Levant. Cultivated in gardens and shrubberies.

Properties. Sedative and narcotic1.

CROW FIG. STRYCHNOS NUX VOMICA.

Class PENTANDRIA.

Ord. MONOGYNIA.

Gen. Ch. Corolla, five-cleft. Berry, one-celled. Native of the East Indies.

Properties. Powerfully poisonous; in very small doses, anodyne and vermifuge.

¹ The poisonous properties of the laurel reside in the prussic acid which pervades the whole plant. The distilled water of the leaves is powerfully poisonous, and, when the active principle is concentrated by repeated distillations, it proves almost instantly fatal in doses of one ounce or more. The oil is one of the most deadly poisons to many animals (as dogs, rabbits, &c.). "When applied in a very small quantity to the eyes, or to the inner part of the mouth, without touching the œsophagus, or being carried into the stomach, it is capable of killing an animal in a few moments."

POISONOUS MUSHROOMS 1.

This peculiar class of vegetables belongs to the order fungi of Linneus, various species of which have been long used as an article of diet; but, as many varieties of the mushroom tribe are deadly poisons, it becomes a very important object to distinguish the poisonous species from the edible ones.

CHARACTERS WHICH DENOTE THE DELETERIOUS SPECIES.

Ist. All those which grow in moist and marshy grounds, in shady situations, where the solar rays have little access; the surface is generally of a dirty appearance, their substance is soft and porous, and contains much moisture. 2nd. All those with bulbous and soft stems. 3rd. Those which grow rapidly and corrupt quickly. 4th. Those whose stems are furnished with a collar or annular veil. 5th. All those whose colour is of an orange, red, green, or rose colour, or have a glairy surface, or many distinct and bright colours. 6th. Those whose flesh turns blue when cut. 7th. Those with an acrid taste or pungent disagreeable odour. 8th. All those which insects have fed upon and quitted, should be rejected as of bad quality.

¹ Orfila ranks them amongst the narcotico-acrid poisons.

GENERAL SYMPTOMS OF POISONING.

Griping pain and heat in the stomach and bowels, vomiting and purging: soon after, the pain becomes more constant and violent, accompanied with great thirst; to these succeed cramps, vertigo, and convulsions. In some, great drowsiness and delirium; in others, the pain and convulsions exhaust the strength, when fainting and cold sweats succeed, and death terminates their sufferings.

The symptoms of poisoning do not manifest themselves until some time after the mushrooms have been eaten, usually from six to eight hours, more rarely twelve; sixteen or twenty-four elapse before any untoward symptoms make their appearance.

Some experience symptoms of suffocation and cardialgia, great pain in the epigastric region, tenesmus and difficulty of making water. In some, the bowels are greatly inflated. The following case of poisoning by the bulbous agaric is narrated by Dr. Bardsly, of Manchester: "On the 29th of October, 1804," Dr. B. says, "I was called upon at six in the evening to visit Master S., aged five years, the son of a gentleman living near this town. His parents informed me that he went out to play in perfect health, after eating a moderate dinner, with a companion of nearly his own age, in the fields adjoining; and in about two hours was led home in a state of alarming illness. He seemed to stagger like a person intoxicated,

and with odd gesticulations laboured to express his sufferings, but was unable to articulate a single syllable. When I saw the patient, which was probably about two hours after the seizure, he appeared partially delirious, and uttered faint and indistinct screams. His pulse was slow, and somewhat irregular. The pupils of both eyes were much dilated, and vision was evidently imperfect. He seemed very averse to lying down, and his restlessness and impatience led him to make frequent attempts to walk about the room, but without any fixed object or design. He was unable to answer any questions, or to express his feelings by words. Slight convulsive motions might be perceived in the legs and arms, which gradually extended to the muscles of the trunk, and produced irregular distortions of the whole body. The upper extremities began to swell, and assumed a livid colour; the abdomen felt hard and tumid." From the symptoms, Dr. B. suspected the cause, but could not ascertain the fact at the time. Frictions with the volatile liniment were applied to the spine, and a stimulating enema administered. He was put into a hot bath at 100°, and kept in for ten minutes. The clyster was soon repeated, and purgative pills, composed of calomel and extract of jalap. Profuse sweating ensued, and was maintained by diluents of lemon whey, &c. A copious stool took place twenty minutes after the last clyster, and the patient, who was tranquillized by the bath, became much better. Soon after, he vomited an

offensive greenish-coloured fluid, and this was succeeded by a plentiful discharge from the bowels; but no vestiges of the fungus could be discovered in the dejections. An evident abatement of symptoms followed, the dilatation of pupils disappeared, the pulse became slower and firmer, he articulated with tolerable distinctness, but seemed like a person just roused from a long and deep sleep, unconscious of any thing that had happened. The bowels were kept in action during the night, and the next day, with the exception of debility and languor, the patient had recovered.

TREATMENT. When any of the untoward effects which have been enumerated, arise from eating mushrooms, the stomach should be immediately evacuated by an emetic of ipecacuanha, emetic tartar, sulphate of zinc, or copper; stimulating glysters should be administered without delay, and as soon as the stomach becomes settled, repeated doses of Glauber or Epsom salts, or castor oil, should be given until the intestines are thoroughly emptied. After the stomach and bowels are sufficiently evacuated, small and repeated doses of ether, or opium and ether in combination, or weak brandy and water, should be given; water, acidulated with any vegetable acid, may be taken to quench thirst. Should symptoms of inflammation supervene, they must be treated according to general principles.





(1.2.3.4 Varieties of) Ty Amanita.

MORBID APPEARANCES.

On dissection, the abdomen is much swelled, the sto-mach and intestines inflamed, and scattered over with gangrenous spots, and both much contracted, especially the latter. The œsophagus has been found inflamed and gangrenous in one subject; and, in another, the lungs were inflamed and distended with black blood, congestion of almost all the veins of the viscera, in the liver, mesentery, and spleen. In some subjects, the blood has been observed extremely fluid; in others, almost coagulated. In the brain, gangrenous spots occur, and also on the pleura, lungs, mesentery, bladder, and uterus. The external appearances observed, are numerous violet-coloured spots on the skin over the whole body, the conjunctiva injected with blood; and the pupil contracted.

AMANATA MUSCARIA.

FLY AMANITAI.

Class xxiv, CRYPTOGAMIA. Ord. iv, FUNGI.

Gen. Ch. *Pileus*, furnished with a stem and *volva*, and bearing on its inferior surface straight, sporuliferous *lamellæ*. *Stem*, either with a ring-like veil, or naked.

¹ Linneus says that flies are killed by this fungus when infused in milk, hence its name muscarius.

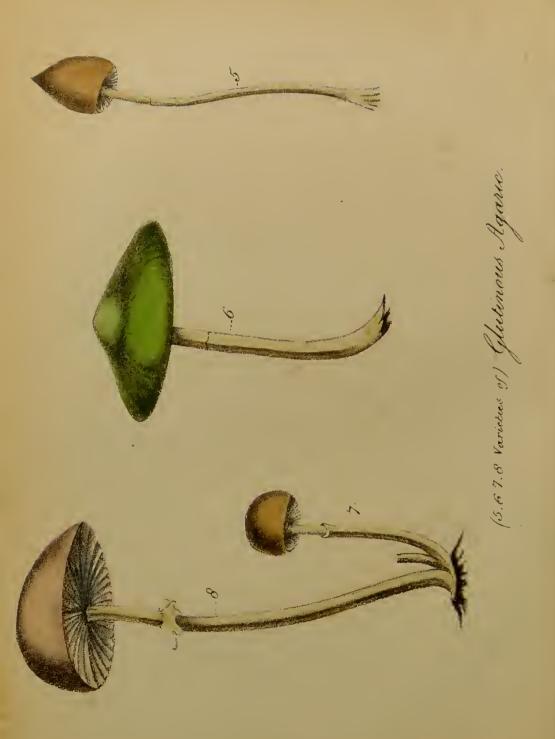
Sp. Ch. Margin of the *pileus*, striated, shining, warty, rarely naked. Warts and lumellæ, white. Volva, vanishing, scaly. Stipes, bulbous.

The fly amanita is one of the largest species of the agaric tribe. It is common in woods in every part of the kingdom, and is very abundant in the Highlands of Scotland. The pileus is from three to six inches in diameter. convex at first, but becoming nearly flat, striated at the margin, varying in colour, sometimes whitish, yellowish, or liver colour, but mostly of a bright red or orange, beset with prominent, downy, angular warts, which are pretty regularly scattered over the surface. The lamellæ are flat, adnate with the stipes, very numerous, broad, and whitish. The flesh is thick, white, and partaking to a small depth of the colour of the pileus. The stipes are cylindrical, straight, smooth, and white, bulbous at the base, and from four to six or eight inches high. The volva is perfect only in very young plants, cracking as the pileus expands into pyramidal warts.

Our drawing illustrates four varieties of this species of amanita¹.

¹ The inhabitants of Kamtschatka prepare from this species of mushroom, an intoxicating drink, which sometimes excites a fatal delirium. (Krascheminekow, *Histoire Naturel du Kamtschatka*, p. 209). A very singular effect of amanita is the influence it possesses over the urine. Dr. Langsdorf informs us, that from time immemorial the inhabitants have





Many cases of poisoning by this species of mushroom are recorded¹. Several soldiers near Polosk, in Russia, who are supposed to have ate of this mushroom, were attacked with the following symptoms: anxiety, suffocation, severe griping, great thirst, pulse small and irregular, cold sweats, great change in the features, inflation of the bowels, coldness and livid colour of the extremities, a fatal delirium followed, and they all expired within twenty-four hours.

AGARICUS SEMIGLOBATUS. HEMISPHERICAL GLUTINOUS AGARIC.

Class xxiv, CRYPTOGAMIA. Ord. iv, FUNGI.

Gen. Ch. Pileus, furnished with a stipes, or fixed by

known that these fungi impart an intoxicating quality to that secretion, which continues for a considerable time after taking it. For instance, a man intoxicated to-day, will, by the next morning, have slept himself sober; but, by drinking a tea-cup full of his urine, will become more intoxicated than he was the day before by the fungus. It is the custom with drunkards to take the urine of each other, and thus propagate the effects, which we are told by Dr. Langsdorf, may be passed to five individuals.

One large or two small fungi is said to produce a pleasant intoxication for a whole day; and, if water be drank after it, the narcotic effects are increased.

¹ Losel relates that six men died in consequence of eating of this agaric. (Flora Prus. p. 88, 1703).

its side, bearing on the under surface straight, simple, sporideferous lamella. Volva, none.

Sp. Ch. *Pileus*, hemispherical, smooth, glutinous, greenish-yellow, or red. *Lamellæ*, fixed horizontally to the stipes. *Stipes*, hollow, glabrous; ring indistinct.

The stem rises from three to six inches in height, hollow, of a yellowish colour, and partly filled with a white pith more or less crooked, glutinous, furnished with a ring. The pileus is from half an inch to an inch and a half in breadth, of a pale orange or straw colour; when full grown, exactly hemispherical, rarely becoming, in large plants, plano-convex, very smooth, and glutinous.

The colour of the pileus or cap is reddish-orange, but it becomes of a browner colour and transparent from being wet with rain. The flesh is thin and white. The lamellæ are numerous, fixed, horizontal, extending nearly in a right line from the margin of the cap to the stem, and mottled with purplish-black sporidia.

This is one of the most common species of agaric, growing in moist meadows and woods, and in exposed and elevated pastures in most parts of the kingdom. It is found growing in clusters, or singly, from May to September.

¹ The name of *glutinous* has been given to this species of agaric by Mr. Curtis, from the pileus being so extremely glutinous.





Tarishes of Dullous Landie.



The glutinous agaric is one of the most poisonous species found in this country. Several cases are recorded of poisoning by this species of agaric. Three individuals in one family died from eating this fungus, as related by Mr. Parrott, of Mitcham, and several individuals in another family were saved by prompt and energetic treatment¹.

AGARICUS BULBOSUS. BULBOUS-STEMMED AGARIC.

Class xxiv, CRYPTOGAMIA. Ord. iv, FUNGI.

Sp. Ch. *Pileus*, obtusely umbonate, smooth, tawny; when dry, testaceous. *Lamellæ*, cinnamon-coloured. *Stem*, very thick, bulbous. *Veil*, white.

The pileus is two or three inches broad, bright brown, or chesnut-coloured, obtusely umbonate, thin at the margin, testaceous when dry, and brittle. The lamellæ are cinnamon-coloured or tawny, three or four in a set, distant, and three or four lines broad, with rose-coloured sporidia. The stem is about four inches in height, solid,

¹ See London Medical and Physical Journal, vol iii.

very thick, dullish red, bulbous, ovate, and, in old specimens, ferruginous at the base. The veil is annular, whitish, and fugacious.

The following mushrooms also possess very powerful poisonous properties:

AGARICUS NICATOR, DEADLY AGARIC.

This species is figured on the title page. Its flesh is firm, giving out a milky fluid when cut into, which is acrid and caustic. The stem is cylindrical, naked, and thick. The pileus is at first convex; afterwards, flat; then concave in the centre. The laminæ are unequal. It grows in woods at the latter end of summer. It is said that a very small quantity of this mushroom is required to produce fatal effects; the juice is believed to be very poisonous.

AGARICUS STYPTICUS, STYPTIC AGARIC.

Its general colour is that of cinnamon. Its flesh is soft and tears with difficulty. Surface dry. Stem naked. Pileus hemispherical, with the edges rolled underneath. The laminæ are straight, all of them entire.

AGARICUS PRYROGALUS, CAUSTIC AGARIC.

Its stem is cylindrical, naked, of a yellow, livid, or earthy colour. Pileus at first convex, then almost flat,

with a slight depression in the centre, frequently of the same colour as the stem.

In addition to the above, the following are more or less poisonous:

Hypophyllum maculatum, albocitrinum, pudibundum, pellitum, sanguineum, tricuspidatum; Ayricus, vemus, urens, aeris, and annularis.

On the continent, a great variety of the fungi are eaten, of which the following may be regarded as wholesome, and some of them very delicious eating:

*Tuber cibarium¹ (common truffle²); *Tuber moschatum; *Tuber album; *Clavaria coralloides and *cinerea. The clavaria may be eaten with safety; but their flesh is rather cottony. Morchella gigas and *esculenta; Helvella *mitra and leucophea; Tuber griscum (Piedmont truffle), which has a slight odour of garlick; none of the tubera are poisonous. Agaricus *edulis (common mushroom), is that mostly eaten in England, under which name, several species of the Agaricus pratelli, or those with fleshy caps, and gills that become black, but do not melt into water, are supposed to be confounded.

Hydnum *repandum and auriscalpium.

¹ Those marked with asterisks are indigenous to Britain.

² Truffles grow under ground, and are dug up.



APPENDIX.

CORROSIVE POISONS.

PRELIMINARY OBSERVATIONS. The denomination corrosive has been given by toxicological writers to those poisons which corrode, irritate, and inflame the texture of the parts with which they come in contact: and under this name are included the various preparations of mercury, copper, arsenic, zinc, gold and silver, &c.; the concentrated acids, viz. the sulphuric, nitric, muriatic, phosphoric, &c.; and the various caustic alkalies, potash, soda, and ammonia; caustic alkaline earths, lime, barytes, &c.

The general effect of corrosive poisons, when taken in small quantities, is to produce excitement of the brain and heart, temporary or durable, or to act as sedatives on those organs, either to increase the customary secretions of the body, or to diminish them. Taken in larger doses, they often destroy life very suddenly. In some cases, the poison corrodes the membranes of the stomach, and, acting by sympathy on the brain, heart, and other

organs, suspends their functions: in other cases, the poison is absorbed and carried to the brain; under different circumstances, death is the consequence of inflammation of the stomach, produced by the corrosive substance.

The symptoms produced by this class of poisons depend either upon their chemical action upon the stomach and alimentary canal, or by their sympathetic action on the nervous and sanguiferous systems. These symptoms are more or less common to all the corrosive poisons: viz. constriction and heat of the mouth, tongue, œsophagus, stomach and intestines, accompanied with excruciating pain in those organs; severe nausea and vomiting, sometimes bloody; frequent, bloody stools, with or without tenesmus, stranguary, and dysuria; the pulse is usually small, hard, frequent, and often almost imperceptible; the extremities are sometimes of an icy coldness or intensely hot; the thirst inextinguishable. Purple spots or miliary eruptions appear over the whole body; a sudden and great alteration of the countenance ensues; the faculties become depraved; loss of sight with risus sardonicus and convulsions; and death speedily follows.

The mode of treatment to be adopted, in cases of poisoning by corrosive substances, is to endeavour to dilute and evacuate the poisonous substance as speedily as possible, either by emetics or the stomach-pump—(this treatment, however, must in every case de-

pend upon the nature of the poison taken); and then to relieve the various symptoms by evacuants and antispasmodics; and by strictly employing the antiphlogistic method, to reduce inflammatory symptoms. In cases where autidotes can be safely given (as in cases of poisoning with oxalic acid), not a moment should be lost in administering them.

CORROSIVE SUBLIMATE. HYDRARGYRI OXYMURIAS.

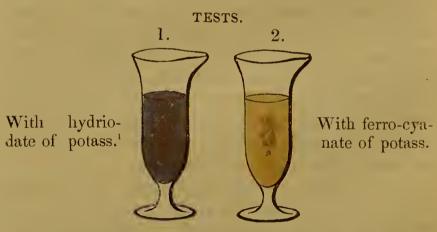
DIAGNOSTIC SYMPTOMS. Constriction of the fauces, ptyalism, green evacuations, having the peculiar mercurial fector.

GENERAL AND OCCASIONAL SYMPTOMS. Acrid, styptic, metallic taste in the mouth, a sensation of burning heat and stricture in the throat; violent rending pains in the stomach and bowels; nausea, frequent vomiting, accompanied with violent efforts; the fluid vomited sometimes bloody; diarrhæa or dysentery; anxiety, difficulty of breathing, pulse small, hard, and frequent; great debility, cold sweats, cramps in all the limbs, insensibility and convulsions, and death follows.

TREATMENT. If eggs can be readily procured, the whites of several should be beaten up with water, and the patient should swallow several glasses full of the liquor. If eggs cannot be procured, he may take large

draughts of sugared water, warm water at the temperature of 25 or 30°, or decoction of linseed or marshmallow root, or leaves, or any gelatinous broth; these liquids should be given in large quantities to promote vomiting, by which a portion of the poison will be evacuated; should symptoms of gastritis, enteritis, or peritonitis supervene, bleeding, both general and local, should be had recourse to; emollient and anodyne glysters should be exhibited, and fomentations to the whole of the abdomen, and every other means usually employed to reduce inflammation.

MORBID APPEARANCES. Stomach inflamed, black gangrenous spots on the parts immediately acted upon, the urinary bladder contracted, and the gall-bladder is in many cases greatly distended with bile.



¹ The red precipitate in the glass is the biniodide of mercury.

By adding muriatic acid to the precipitate No. 2, a blue colour is the result. A good test to discover the presence of mercury is the amalgam formed with gold, by touching that metal with a drop of the suspected solution, applied by means of a small wire of iron or zinc.

Dr. Christison recommends that, in cases of poisoning, when corrosive sublimate is mixed with organic substances, the liquid, without previous filtration, be agitated with a fourth of its volume of ether, which separates the poison from the aqueous part, and rises to the surface. The ethereal solution is then evaporated on a watch-glass, the residue dissolved in hot water, and the mercury precipitated in the metallic state by protochloride of tin. The organic substances are then dissolved in a hot solution of caustic potass, and the insoluble parts washed and sublimed to separate the mercury. (Christison on Poisons.)

LEAD.

DIAGNOSTIC SYMPTOMS. Great internal pain, particularly round the region of the umbilicus, constipation, and paralysis.

GENERAL AND OCCASIONAL SYMPTOMS. Gripings in the bowels; at first, obtuse and returning at intervals,

by degrees becoming continued and almost insupportable; obstinate costiveness; alvine discharge painful and difficult, the excrements being hard like those of some animals. The abdomen retracts, and sinks in towards the navel; gentle pressure on the belly rather relieves than increases the pain¹. When the pain is very acute, nausea and vomiting take place; countenance pale; great anxiety; pulse nearly natural, whatever the intensity of pain. Icterus, delirium, convulsions, cold sweats, and death.

To persons who are long exposed to the carbonate of lead, it occasions frequent attacks of colic, paralysis of the hands, constipation of the bowels, and lingering indisposition for many years, with wasting of the muscular substance.

TREATMENT. In cases of poisoning with any of the salts of lead², taken into the stomach, the best antidote is a solution of the sulphate of magnesia³. The patient ought to take copious draughts of water, containing half an ounce of the sulphate of magnesia to a pint of water;

¹ In general, when the umbilical region of a person attacked with metallic colic is gradually pressed with the hand, the pain greatly diminishes; at other times, however, the slightest pressure cannot be borne; so that this sign cannot be considered as a diagnostic symptom.

² Of the salts of lead, the most poisonous is the carbonate (white lead); and the least so is the acetate (sugar of lead).

³ The sulphate of magnesia is a true antidote to the acetate of lead.

or, if that is not to be had, soda or potash may be substituted. After which, caster-oil or senna, combined with jalap, sulphate of soda, and manna, may be administered; with anodyne, emollient, or cathartic glysters, according to circumstances.

MORBID APPEARANCES. On dissection, no traces of morbid affections have been discovered.

1. 2. 3. 4.

- 1. Tested with hydriodate of potass.
- 2. ——with sulphuretted hydrogen.
- 3. with chromate of potass.
- 4. Deposition on a plate of zinc.

Lead may be detected by placing the suspected liquid containing it, on a slip of platina, and touching it with a bit of zinc at that point; it is necessary to put a small

quantity of acid, with the liquid under examination, on the platina; a galvanic action is immediately established, and the lead is precipitated on the platina in its metallic form.

The best method of detecting the presence of lead in mixed fluids, is by means of hydrosulphuric acid. The precipitated sulphuret of lead, after being collected on a filter and washed, is to be digested in nitric acid, diluted with twice its weight of water, until the dark colour of the sulphuret disappears. The solution of the nitrate should then be brought to perfect dryness on a watchglass, in order to expel excess of nitric acid, and the residue be redissolved in a small quantity of cold water.

On dropping a particle of iodide of potassium into a portion of this liquid, yellow iodide of lead will instantly appear¹.

ARSENIC.

DIAGNOSTIC SYMPTOMS. Burning pain at the pit of the stomach, and throughout the whole of the intestinal canal; continued thirst, inclination to vomit, anxiety, and frequent faintings; pulse irregular.

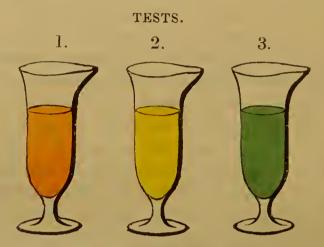
¹ Turner's Elements of Chemistry.

GENERAL AND OCCASIONAL SYMPTOMS. An austere taste in the mouth, fetid breath, continued spitting, constriction of the throat, nausea and vomiting of a brown or bloody matter; hiccups, unquenchable thirst, palpitation of the heart, cold sweats, loss of feeling, particularly in the hands and feet, great prostration of strength, and convulsions; and death succeeds.

The pulse is small, frequent, and intermitting; the alvine evacuations blackish and fetid; urine red, bloody, and scanty; features much altered, a livid circle round the eyelids; sometimes swelling and itching over the whole body, which is covered with miliary eruptions or livid spots; falling off of the hair and peeling of the skin. The above symptoms are seldom united in the same individual.

TREATMENT. The means to be made use of in cases of poisoning by arsenic are nearly the same as those recommended for corrosive sublimate; namely, in administering large quantities of warm water, sweetened with sugar or honey; decoctions of mallow or linseed; to promote vomiting by tickling the throat with the finger or a feather; where vomiting does not take place, recourse must be had to the stomach-pump. Inflammatory symptoms must be subdued by general means, as noticed under the head corrosive sublimate.

MORBID APPEARANCES. Inflammation of the stomach and parts acted upon, with gangrenous spots, erosion and destruction of the mucous and muscular coats of the stomach, &c; often excoriation and ulceration of he anus.



- 1. A solution with ammoniated nitrate of silver.
- 2. with sulphuretted hydrogen.
- 3. with ammoniated sulphate of copper².

Ammoniated nitrate of silver is made by dropping ammonia into rather a strong solution of lunar caustic till the oxide of silver at first thrown down is nearly all dissolved. When this liquid is mixed with a solution of arsenious acid, two neutral salts result, the soluble nitrate of ammonia and the insoluble yellow arsenite of oxide of silver. The latter is shewn in the glass.

² Ammoniated sulphate of copper is prepared by adding ammonia to a solution of sulphate of oxide of copper until the precipitate at first thrown down is nearly all re-dissolved. This liquid occasions, with arsenious acid, a green precipitate (shewn in the glass). This test is best adapted for detecting a solution of arsenious acid in pure water. Dr.

A drop of any mixture suspected to contain arsenic, placed between two plates of heated copper, will (if it contains that metal) impart to them a whitish metallic appearance; and, if an equal quantity of flux be introduced along with it into a glass tube, it may be reduced to its metallic state. Subcarbonate of potass and the common black flux will be found most proper for the purpose; when the former is used, a small hole should be left in the cork of the phial to allow the steam to escape, while the salt is giving off its water of crystallization. The metal, so reduced, has an alliaceous smell¹.

As no substance, nor indeed mixture of substances, is known to produce, with all the three liquid tests, the same precipitates as arsenic, their indications, when taken conjointly, can scarcely be considered otherwise than conclusive².

Of the various tests, the only one which gives uniform results, and is applicable to every case, is sulphuretted hydrogen, followed by reduction.

Christison has proved that ammoniacal sulphate of copper produces, in some vegetable and animal infusions which do not contain any arsenic, a greenish precipitate which may be mistaken for Scheele's green (the precipitate in the glass).

¹ Mr. E. Davy discovered the five-hundredth part of a grain by the galvanic test, noticed under lead.

² Turner.

COPPER.

DIAGNOSTIC SYMPTOMS. A styptic coppery taste in the mouth, constriction of the throat, great internal pain, severe vomiting, and bloody stools.

General and occasional symptoms. Dry, parched tongue, great thirst, a sense of strangulation in the throat; continual flow of saliva, nausea, coppery eructations, copious vomitings, or ineffectual efforts to vomit; shooting pain in the stomach, and severe griping in the bowels; the abdomen swelled, painful, and puffed up; skin hot, pulse small, irregular, and frequent; urine scanty, difficulty of breathing, giddiness, violent head-ach, and faintness; followed by cramps, convulsions, and death. The vomitings and colic pains are the most general symptoms: sometimes gangrene suddenly seizes the intestines; and death speedily follows.

It may be asserted that cases of poisoning by the preparations of copper are the most frequent. The daily use of utensils of copper, the facility with which it combines with oxygen, the deleterious action which this oxide exerts upon the animal economy, are so many causes which account for the frequency of this kind of poisoning. The preparations of copper have rarely been employed as instruments of poisoning; but from the negligence of persons who make use of vessels of copper, which have been badly or not at all tinned, numerous fatal accidents have resulted.

"Two men, having eaten of a ragout, prepared in a copper vessel, which had been negligently tinned, died poisoned, after having experienced, for the space of about an hour, violent cardialgia; to which succeeded horrible vomitings, and a continual tenesmus. Every remedy administered to them was useless. On opening their bodies, the alimentary canal was found distended with a great quantity of gas, corroded in several places, principally in the small intestines. The pylorus and duodenum were gangrenous, and the rectum was pierced through in two points; the œsophagus and pharynx appeared in a natural state¹."

"Professor Dupuytren relates that a whole family were poisoned by eating lobsters which had been cooked, and afterwards remained in a copper kettle, into which had been poured vinegar, with which it is the custom in some places to season them. Three persons, advanced in years, died from the consequence of this poisoning²."

The above fatal cases are sufficient to warrant the observations we have made on the consequences of cooking and leaving victuals in untinned copper vessels.

¹ Observation sur les Effets des Vapeurs Méphitiques dans l'Homme, par Portal, 1787, p. 436.

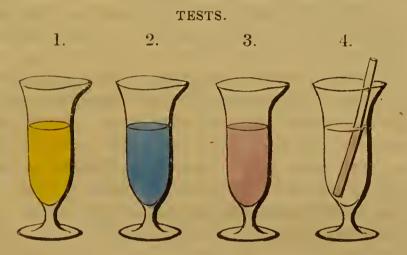
² Drouard, op. cit. p. 74.

TREATMENT. Rich solutions of sugar in water should be copiously drank, by which means the deleterious action of the poison will be very much weakened, and the stomach, being filled with fluid, will greatly promote vomiting. If sugar cannot be immediately procured, the patient must be plied with warm water, or even cold water, or with emollient decoctions, or broth, and vomiting promoted by irritating the throat with the finger or a feather. If, by these means, vomiting does not take place, a solution of tartar emetic may be administered; the stomach-pump may be employed in those cases where vomiting cannot be excited. If the poison has been some time swallowed, and we may suppose already entered the intestinal canal, and if the patient has already vomited considerably, and has been labouring under violent colic, we must abstain from provoking the vomiting afresh, which would be useless, and even attended with danger; cooling, mucilaginous, and oily drinks ought to be employed and continued until the principal symptoms be relieved. Where inflammation of the viscera has made its appearance, bleeding, both general and local, warm baths, emollient fomentations, &c. must be vigorously employed2.

¹ Sugar acts chemically upon the preparations of copper.

² M. Orfila has proved that the salt of copper is precipitated of a yellowish white colour by albumen, and which compound is inert; hence it follows that albumen is an antidote to poisoning by copper.

MORBID APPEARANCES. The mucous membrane of the stomach and intestines found inflamed and gangrenous¹.



- 1. With hydriodate of potass.
- 2. With ammonia.
- 3. With ferro-cyanate of potass.
- 4. Deposited on a plate of iron or zinc.

The salts of copper, if dissolved in warm water, may be detected by introducing into the mixture a small cylinder of phosphorus, which, in a few minutes, or a piece of pure iron, which, in a few hours, will become covered with a coat of metallic copper. Should none of the poison be left unswallowed, however, it may be de-

¹ It has been observed that the salt has tinged all the fluids found in the intestinal canal.

tected in a similar manner in the matter vomited. Iron will sometimes remain several hours, and even days, before precipitating the metallic copper from the solutions of verdigris when mixed with animal matters. Phosphorus always affects this precipitation in a much shorter space of time.

Another mode of detecting copper, when supposed to be present in mixed fluids, is by hydrosulphuric acid. The precipitated sulphuret, after being collected and heated to redness, in order to char organic matter, should be placed upon a piece of porcelain, and digested in a few drops of nitric acid. Sulphate of protoxide of copper is formed, which, when evaporated to dryness, strikes the characteristic deep blue tint on the addition of ammonia. (Turner.)

The galvanic test mentioned under the article lead may be successfully employed in the case of copper.

MURIATE OF TIN¹, SULPHATE OF ZINC², NITRATE OF SILVER³, and MURIATE OF GOLD, are all active cor-

¹ This substance is much used in the art of dying. The muriate of tin of commerce is generally met with in the form of small needle-crystals, united by fasqia, of a yellowish white colour.

² It is very seldom indeed that death is occasioned by sulphate of zinc, as it is so powerful an emetic as to be discharged from the stomach almost as soon as swallowed.

³ A weak solution of the muriate of soda (common salt) may be given with advantage in cases of poisoning by nutrate of silver; followed by mucilaginous drinks, &c.

rosive poisons, and their effects upon the animal economy are similar to those of the minerals we have already described; but, as they are never taken voluntarily to accomplish self destruction, or given for the purpose of destroying the life of another, and very rarely taken by mistake for other substances, we merely think it necessary to say, that the same remedies and treatment are applicable both to them and to the minerals from which they are derived.

THE CONCENTRATED ACIDS.

These powerful agents have been sometimes resorted to for the purpose of self destruction, and to destroy the lives of others, but have more frequently been taken by mistake for other substances. The most destructive of these acids are the sulphuric¹, nitric, muriatic³, phosphoric, hydrocyanic or prussic, and oxalic.

¹ The presence of sulphuric acid may be detected by the muriate of barytes; this acid instantly produces a white precipitate, in very great abundance, which is insoluble in nitric acid, known under the name of sulphate of barytes.

² Nitric acid may be detected by pouring it upon copper filings, when a brisk effervescence takes place, accompanied with orange-yellow vapours, and the copper becomes converted into *nitrate* of copper, of a green colour, which soon changes to blue. A single drop of this acid reddens a great quantity of the infusion of tournesol.

³ Muriatic acid may be discovered by adding nitrate of silver, which gives a white precipitate, soluble in ammonia, but insoluble in the acids.

Some of these acids whiten the mucous membrane and stain the cuticle or other parts to which they are applied. The stain of the nitric acid is yellow; that of the muriatic and sulphuric, blackish-brown or black.

The symptoms from the internal exhibition of the mineral acids are similar to those produced by corrosive sublimate and other mineral poisons.

The best remedy to be resorted to in the first instance, as soon as it is discovered that either of these acids has been taken, is a copious solution of calcined magnesia in water. If this cannot be readily procured, chalk and water, or soap and water, may be substituted with advantage; if none of these be at hand, any mucilaginous liquid, milk, or even warm or cold water, should be administered abundantly.

Symptoms of inflammation, &c. must be treated according to the general principles laid down for the corrosive mineral poisons.

OXALIC ACID.

DIAGNOSTIC SYMPTOMS. Burning pain in the stomach; acid taste of any matter vomited; mucous membrane, as in the case of all acids, at first whitened; incessant vomiting; pulse feeble. General and occasional symptoms. Vomiting violent and incessant, the matter ejected generally of a dark colour and often bloody; griping and purging; the pulse, feeble and irregular, rapidly sinks and becomes almost imperceptible; the extremities become deadly cold, and the fingers and toes turn livid; clammy sweats, insensibility and convulsions sometimes precede death.

TREATMENT. The first object should be to weaken the activity of the poison, by administering a mixture of chalk and water, or magnesia and water¹; should no spontaneous vomiting take place, the stomach-pump may be employed, or an emetic administered; but, previous to either, the chalk or magnesia and water should be given; no time should be lost in administering this antidote, the effects of the acid being so rapid, that little time is afforded for counteracting its effects by remedial arts. After the local effects of the poison have been counteracted, purgatives should be given to carry off the oxalate, and the patient supported by nourishing diet, cordials, and opium.

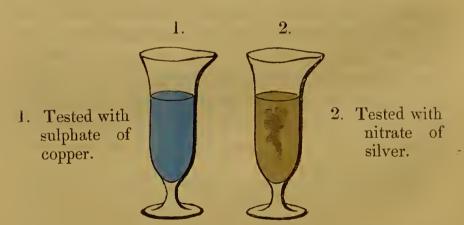
MORBID APPEARANCES. Oxalic acid acts chemi-

¹ Chalk may be considered an antidote to oxalic acid, as it chemically combines with the acid, and forms an oxalate of lime which is perfectly inert. Magnesia also chemically combines with the oxalic acid and forms oxalate of magnesia, an inert substance, but more soluble than the oxalate of lime.

cally on the coats of the stomach by dissolving the gelatin of its coats; and sympathetically on the nervous system, by absorption, and through the local injury done to the stomach¹.

The stomach is generally found to contain a quantity of dark-coloured fluid, thickening of the mucous coat, which is usually soft, pulpy, and easily torn; sometimes the coats of the stomach have presented great vascularity, or were perforated with holes, so as to admit its contents into the cavity of the abdomen.

TESTS.



"Oxalic acid may be precipitated (when present in

See London Med. Repos. vol. iii, p. 386, and Edin. Med. and Surg-Journ. vol. xix, p. 163.

mixed liquids) by nitrate of oxide of lead, the liquor being previously neutralized by a little carbonate of soda. The precipitated oxalate of oxide of lead, after being well washed, is to be suspended in water (before drying), and decomposed by a current of hydrosulphuric acid, and the clear liquor poured off from the sulphuret of lead, and evaporated, that crystals may form¹."

Muriate of lime will occasion, in a solution of oxalic acid, a precipitate which is soluble in a very *small* quantity of nitric acid, but not in the muriatic acid, unless a very *large* quantity is used.

The oxalate of silver formed (in the glass No. 2) is a fulminate. Dr. Christison, we are told, from a quarter of a grain of oxalic acid dissolved in 4000 parts of water, procured enough of the oxalate of silver to shew its fulmination twice².

HYDROCYANIC OR PRUSSIC ACID.

DIAGNOSTIC SYMPTOMS. Loss of voluntary nervous power, pulse small and irregular, pupil of the eye dilated and insensible to light.

¹ Thompson.

² Edin. Med. Journ. vol. xix, p. 198.

OCCASIONAL SYMPTOMS. Great uneasiness and pain at the pit of the stomach, sickness and retchings, heaviness of the head, and slight cephalalgia, accelerated pulse, foaming at the mouth, and lock-jaw, convulsions, and sudden death. Prussic acid, when taken in large doses, destroys life almost instantaneously¹; some have died suddenly in convulsions; others, without having experienced any violent symptoms, have fallen down dead, as if struck with apoplexy.

Prussic acid, in its concentrated form, is the most terrific and deadly poison known, whether given internally or applied externally². Its effects upon some animals, as dogs, rabbits, birds, and reptiles, are instant death³; numerous instances of which are recorded by many authors⁴.

TREATMENT. The effects of prussic acid are, in general, so powerful, and prove so quickly fatal, that little or no time is allowed for remedial agents. When, however, the case admits, the most active stimulants (such

¹ A servant girl swallowed a small glass-full of alcohol, saturated with prussic acid; at the expiration of two minutes she fell down dead. (Annales de Chimie, 1814.)

² Scharinger, professor at Vienna, having prepared some concentrated prussic acid, rubbed a portion of it upon his naked arm, and died in a short time.

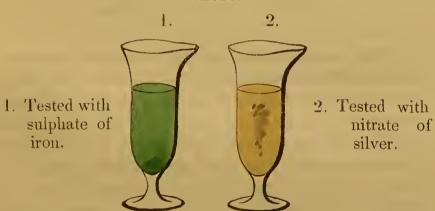
³ Phil. Trans. v. 37, p. 163.

⁴ Nicholls, Vater, Langrish, Fontano, and others.

as ammonia) should be instantly administered, with cold affusion; and the same treatment pursued as recommended in cases of poisoning by the other narcotic poisons.

MORBID APPEARANCES. On opening the bodies of those who have died after taking prussic acid, no lesion of the alimentary canal, or other distinguishing appearances, have been discovered. Its effects appear to depend on its being absorbed and carried into the circulation, and its action upon the nervous system

TESTS.



Previous to using the sulphate of iron, some liquid ammonia or potass should be added to the solution.

"MM. Lewret and Lassaigne have recommended the following process to discover the presence of this acid after death: the stomach or other substances to be cut into small pieces, and introduced into a retort along with

cold water, the liquid being slightly acidulated with sulphuric acid. This distillation is then conducted in a water bath, the volatile products are collected in a receiver surrounded with ice, and the presence of hydrocyanic acid in the distilled matter is tested by the method mentioned. These gentlemen found that hydrocyanic acid may be detected two or three days after death, but not after a longer period."

ON THE USE OF TESTS.

In the employment of tests, to discover the particular poisonous substance which any person may have taken, we should first endeavour to ascertain if any portion of it remains untaken, which, if discovered either in a fluid or solid state, may be readily examined. The substance to be investigated, if in the form of powder, should be dissolved in warm water at the temperature of 80 or 100° (a few grains dissolved in half an ounce of distilled water will be sufficient); to portions of this solution, different tests should be added, one of which will decide the poison taken.

Should the whole of the poisonous substance have been taken, the matter vomited must be examined, which, if liquid, a portion of it should be filtered, and then submitted to the various tests. If the matter vomited consists of both solids and fluids, the former should be separated from the latter by pressing it through a fine strainer, and the fluid portion submitted to the tests, and the solid parts carefully examined, to ascertain if any white or hard particles, similar to arsenious acid or corrosive sublimate, be present.

We must here observe, that, with regard to the particular colour of the tested liquor, it will be sometimes almost impossible to decide, owing to the turbid and discoloured state of the matter vomited, from its union with bile, wine, or other substances contained in the stomach.

If the fluids vomited be very much diluted by the liquids drank, the tests may not succeed in discovering the poison; it may then be necessary to concentrate the liquid by evaporation, and then repeat the experiments, which may probably prove more successful.

If the existence of the metallic poison cannot be discovered in the liquid examined, the solid parts, vomited, or contained in the stomach, after death, may be boiled in distilled water, and the liquor submitted to the various tests.

The most certain method of detecting the mineral poisons, if a sufficient quantity can be obtained by concentrating the liquor, is by reducing them to their metallic state.

CANTHARIDES OR SPANISH FLIES. CANTHARIS VESICATORIA.

These flies are so well known that they need no particular description.

The symptoms of poisoning by cantharides are: a nauseating smell, an acrid disagreeable taste, retchings, violent vomiting, insupportable pain in the abdomen, frequent purulent, bloody stools, bloody urine, an obstinate and exceedingly painful priapism, pulse hard and frequent, a disagreeable sensation of heat and ardent thirst, convulsions, delirium, tetanus, syncope, and death.

TREATMENT. The free use of diluents, as milk, almond emulsion, barley-water, and other mucilaginous liquids should be immediately employed to moderate the action of the poison; while the various symptoms must be treated according to general principles.

Cantharides are seldom employed internally, except in the form of tincture, and require to be given with great caution and in very small doses; even when employed as blisters, they occasionally produce very unpleasant and disagreeable symptoms.

FINIS.



